



New Features in Logic Express 7.2



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New Features in Logic Express 7.2

This document describes features not covered in the Logic Express 7 manuals.

It contains detailed information about the improvements and changes found in the Logic Express Updates that have been released since Logic Express 7.

Important: The descriptions in this document supersede the relevant sections of the Logic Express 7 manuals!

For late-breaking information about Logic Express 7.2, please refer to the Late-Breaking News document. This document is published online and may be updated as additional information becomes available. You can access the Late-Breaking News document by choosing Help > Late-Breaking News in Logic.

For the latest information about product updates, tips and techniques, visit the Logic Express website at <http://www.apple.com/logicexpress>.

This document combines the Logic Express 7.1 and Logic Express 7.2 new features descriptions and the Logic Express 7.0 and Logic Express 7.1 Late Breaking News document. This is to provide a single, unified reference that contains all new feature descriptions and changes that would otherwise have been spread across four separate manuals. If you are only interested in changes made since Logic Express 7.1, please refer to the following section. It provides a high-level feature list for Logic Express 7.2. For detailed information about these features and changes, follow the links to the respective sections.

The updated documentation also includes a comprehensive Apple Loops chapter. This provides a one-stop-shop for all topics relating to audio in this format.

Logic Express 7.2 Features Overview

This section provides a summary of the Logic Express 7.2 features. For more information on these features and their use, see the corresponding chapters in this document.

Playback of compressed file formats

Logic Express 7.2 allows the direct playback of compressed file formats, such as AAC. These files no longer need to be automatically converted when imported. For detailed information, see “Direct Playback of Compressed Audio Files” on page 23.

Channel Strip Performances

Logic Express 7.2 allows you to switch Channel Strip settings via MIDI program change messages. For more information, see “Using Channel Strip Performances” on page 27.

Toggling the Insert slot bypass status

Logic Express 7.2 allows you to toggle the bypass status of Audio Object Insert slots using MIDI controller value 64. For more information, see “Automating the Bypass Status” on page 30.

Support of stereo ReWire Objects

Logic Express 7.2 now offers support for stereo ReWire Objects, providing additional flexibility and simplifying use of ReWired applications such as Reason. For more information, see “Support of Stereo ReWire Objects” on page 30.

Auto Hide Dock preference

Logic Express 7.2 offers a new Auto Hide Dock preference, allowing you to hide the Dock while running Logic, making more screen space available. For more information, see the “New Auto Hide Dock Preference” on page 14.

Enhanced Control Surfaces support

Logic Express 7.2 now supports the iControl GarageBand control surface distributed by M-Audio. For information about individual control surface assignments, or how to change the default assignments, please refer to the *Control Surfaces Support* document—found in the Documentation folder of the Logic Express 7 Installation DVD.

Furthermore, Logic Express 7.2 offers the Track Control Bar: This is a colored bar that indicates Arrange window tracks that are actively being accessed by a control surface. For detailed information, refer to “Working With the Track Control Bar” on page 38.

Logic Express 7.2 provides updated control surface plug-ins that support the Key Repeat function (if useful and/or applicable to the device). When active, the key command function being triggered via a controller assignment is continuously executed for as long as the button or switch is held down. For details on working with the Key Repeat function, see the “New Key Repeat Function” on page 39.

Key command changes

The Logic Express 7.2 Update features the following key command changes:

- Go to Song Start—New
- Remove Movie—New
- Save as Performance—New
- Go to Selection End—New. This Sample Editor key command sets the SPL to the end of the selected audio file section.

The Goto Selection key command has been renamed as Go to Selection Start.

For a complete list of all key command changes since the Logic Express 7.0 release, please read about the “[Key Command Enhancements](#)” on page 15.

New Ducker plug-in

This plug-in automatically reduces the level of a music mix while an announcement (a voice-over) is being made. Once the announcement has finished, the music mix volume will return to its previous level. Details on working with the Ducker plug-in can be found in the section entitled “[New Ducker Plug-in](#)” on page 78.

New Speech Enhancer plug-in

This plug-in enhances the intelligibility and sound of speech recordings made with built-in Macintosh microphones, such as those found in iBooks and PowerBooks. For details on working with the Speech Enhancer plug-in, read about the “[New Speech Enhancer Plug-in](#)” on page 80.

Loop Browser offers new sound effects categories

Logic Express 7.2 ships with a number of additional Apple Loops designed for use as sound effects. These loops can be found in the Loop Browser’s new Sound Effects view—which displays new Loop Browser buttons, with special tags for effects and jingles. You can activate this Loop Browser view by clicking the View button that features the Bell icon. Clicking the Note icon switches to the Button view of previous Logic versions. For further information, see “[The Loop Browser Interface](#)” on page 44.

Follow Tempo option for Apple Loops

The Region Parameter box of looped (not-one-shot) Apple Loops now offers the Follow Tempo option. If this option is disabled, the Apple Loop will not follow the song tempo and key. For information on Follow Tempo, please read “[Working With the Follow Tempo Function](#)” on page 24. For information about Apple Loops, please refer to “[Using Apple Loops](#)” on page 41.

State of “Faster overview calculation” option is saved

Logic now remembers the state of the Faster overview calculation option in the Overview creation dialog. For further information, see “[Faster Overview Creation](#)” on page 26.

Enhanced AAC Sound Settings Window

Logic Express 7.2 features an improved, unified AAC Sound Settings window that simplifies the creation of this compressed file type. For more information, see “Streamlined AAC Sound Settings Window” on page 33.

Support for up to 32 mono outputs for Audio Units instruments

Logic now supports up to 32 mono outputs for multi-channel Audio Units instruments. For further information, read about “Audio Units Multi-Channel Instrument Support” on page 83.

This chapter describes all general enhancements that have been made since Logic Express 7.

These changes streamline and simplify the use and setup of Logic. They include:

- Plug and play of audio interfaces
- Interface enhancements
- Preference and song setting enhancements

Plug and Play of Audio Interfaces

Logic Express supports plug and play for audio interfaces, making it possible to connect and switch on a new/additional audio interface while Logic is running. An alert appears when you connect a new device, and will prompt you to select and confirm the audio interface/driver that you would like to use.

Interface Changes

The Logic interface has been enhanced in the following areas since the release of Logic Express 7:

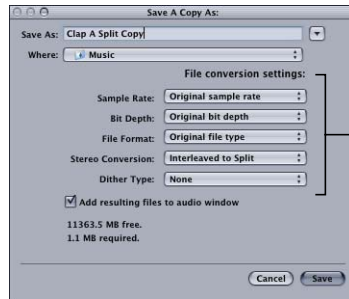
- Many dialogs provide additional audio file handling options.
- Menus have been cleaned up, some menu items have clearer names.
- Parameter boxes: Parameters that only have two states are displayed as checkboxes.

Read the following sections for details.

Dialog Enhancements

A number of changes have been made to the following Logic dialogs:

- *Sample Editor*: Audio File > Save Selection As, Audio File > Save a Copy As. Both dialogs allow you to set the desired sample rate, stereo conversion and dither type for the destination file. The dialogs also feature an “Add resulting files to Audio window” option.



Some file dialogs feature additional file conversion settings.

- *Audio window*: Audio File > Save Region As, Audio File > Copy/Convert File As: Both dialogs offer the file conversion menus outlined above for the Sample Editor, enabling one or multiple selected Regions/files to be converted or copied. The Copy/Convert File As dialog also provides an “Add resulting files to Audio window” option.
- *Arrange window*: The Audio > Convert Regions to New Audio Files dialog offers the file conversion menus outlined above for the Sample Editor.
- The global File > Export > Region as Audio File dialog offers the “Add resulting files to Audio window” option.

Menu Changes

The Audio > Audio Settings menu item was removed, as it duplicated the Logic > Preferences > Audio functionality.

The Logic > Preferences > Control Surfaces > Scan and Logic > Preferences > Control Surfaces > Install menu items have been moved into the local New menu of the Setup window (Logic > Preferences > Control Surfaces > Setup).

The local Matrix Editor View > White Background menu item was renamed to View > Bright Background.

Parameter Boxes

All parameters that only have two states (on/off, for example) are enabled/disabled with checkboxes.



Simply click on the box to activate (checked) or deactivate (unchecked) the parameter. Parameters that have been updated to operate in this fashion include:

- *Region:* Loop
- *Arpeggio Object:* Repeat
- *Display parameter in Score Editor:* Interpretation, Syncopation, No Overlap, Lyric

Hidden Menu and Scroll Bars in Screensets

Logic Express allows you to save the state of hidden menu bars and scroll bars in Screensets. Hidden menu bars and scroll bars are also saved when you close a window. As an example: Hide the menu bar and scroll bars of the Arrange window and close it. When you reopen the Arrange window, the menu and scroll bars remain hidden.



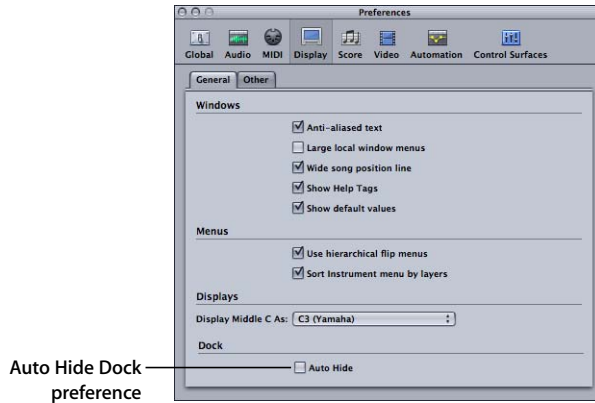
To hide a window's local menu and scroll bars:

- Option-Command click the window's title bar.

This function is handy in situations where you would like to configure small floating Environment windows containing Fader Objects—used as switches, for example.

New Auto Hide Dock Preference

The General pane of the Display preferences in Logic Express 7.2 offers the Auto Hide Dock option.



Activation of this preference automatically hides the Dock while Logic is running, maximizing onscreen space for Logic windows.

To activate the Dock Auto Hide preference:

- 1 Choose Logic > Preferences.
- 2 Click the Display button.
- 3 Activate the Auto Hide checkbox in the Dock section of the General pane.

Note: This option is also available in the Logic Setup Assistant.

This chapter outlines the editing enhancements made since Logic Express 7.

These changes encompass a number of new or altered key commands, new track creation facilities and improved marker handling, among others.

Key Command Enhancements

The following section outlines all key command enhancements made since the release of Logic Express 7. This includes several new key commands which may accelerate your workflow and a new key command warning, which can help you to keep track of key command assignments.

Additional Key Commands

The following tables list all key commands that have been added since the release of Logic Express 7.

Global Menu Functions

The following global key commands have been added.

Key command	Function/Explanation
Open Global Preferences	Opens the respective preferences.
Open Audio Preferences	
Open MIDI Preferences	
Open Display Preferences	
Open Score Preferences	
Open Video Preferences	
Open Automation Preferences	
Open Control Surfaces Preferences	
Open Surround Preferences	
Open Synchronization Song Settings	Opens the respective song settings.
Open Metronome Song Settings	
Open Tuning Song Settings	

Key command	Function/Explanation
Project Settings	Opens the Project Settings window.
Clean Up Project	Displays all unused audio files or EXS instruments in your project folder, allowing you to delete them.
Consolidate Project	Moves all files associated with a project into one folder.
Rename Project	Opens a dialog that allows you to rename your project.
Save as Project	Saves a song or project. If the open song isn't already a project, the song is assigned project status.
Save a Copy as	Allows you to save a copy of a song or project under a different name.
Save as Template	Saves the song (inclusive of all mixer, track and environment settings) as a template, which can be used for future projects.
Import Audio File	Adds an audio file to your project.
Loop Browser	Launches the Loop Browser window.
Open Step Input Keyboard	Displays the Step Input Keyboard window.
Toggle Plug-In Delay Compensation: All/ Tracks and Instruments	Switches the Plug-in Delay Compensation preference between "All" and "Audio tracks and instruments"

Arrange menu

The following local Arrange menu functions (Arrange window) are also available as key commands:

Key command	Function/Explanation
Create Multiple Tracks	Opens a dialog that enables you to sequentially create the defined number of tracks.
Delete Redundant Audio Tracks	Removes unused audio tracks.
Open in Apple Loops Utility	Opens the selected Audio Region in the Apple Loops Utility.
Copy ReCycle Loop	Self-explanatory.
Paste ReCycle Loop	Self-explanatory.
Search Zero Crossings	Enables/disables automatic searches for zero crossing points in audio files and Regions. Enabling this facility makes the creation of smooth audio loops easier.

Hyper Editor

The following local Hyper Editor functions are also available as key commands:

Key command	Function/Explanation
Create Hyper Set	Allows you to define a limited number of MIDI controllers as a Hyper Set.
Create GM Drum Set	Self-explanatory.

Key command	Function/Explanation
Create Hyper Set For Current Events	A Hyper Set is created, based on controller information that exists in the selected Region(s).
Clear Hyper Set	Removes all controller definitions from a Hyper Set.

Track Mixer

All Filter buttons can be switched on and off via key commands.

Key command	Function/Explanation
Toggle MIDI Instruments	Shows/Hides MIDI instrument channel strips.
Toggle Audio Tracks	Shows/Hides audio track channel strips.
Toggle Audio Instruments	Shows/Hides audio instrument channel strips.
Toggle Audio Aux	Shows/Hides auxiliary channel strips.
Toggle Audio Busses	Shows/Hides bus channel strips.
Toggle Audio Outputs	Shows/Hides audio output channel strips.

Channel Strip settings

The following key commands have been added:

Key command	Function/Explanation
Next Channel Strip Setting	Loads the next Channel Strip setting in the list of settings.
Previous Channel Strip Setting	As above for the preceding setting.
Next Channel Strip Setting or Plug-in setting or EXS Instrument	Loads the next Channel Strip or Plug-In setting (or EXS Instrument) in the list of settings.
Previous Channel Strip Setting or Plug-in setting or EXS Instrument	As above for the preceding setting.
Save Channel Strip Setting as	Allows you to save a Channel Strip setting under a new name.
Copy Channel Strip Setting	Copies the selected Channel Strip setting into the Clipboard.
Paste Channel Strip Setting	Pastes the Channel Strip setting from the Clipboard into the selected channel strip.
Save as Performance	Saves the Channel Strip setting as a numbered (and named) Performance setting, allowing you to access it via a program change message.

Drag menu

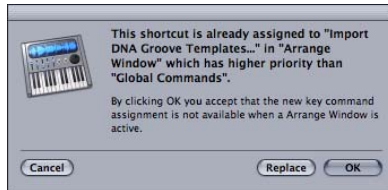
All Drag menu entries can be chosen via key commands. Simply search for Drag in the Key Commands window to find them.

Sample Editor

The Sample Editor offers the new Go to Selection End key command, which moves the SPL to the end of the selection (within an audio file). The Goto Selection key command has been renamed as Go to Selection Start.

New Key Command Warning

In circumstances where an existing local key command combination is used while assigning a new global key command, the following warning message will appear:



You have three options: Cancel, Replace, or OK.

- Cancel does not alter existing assignments.
- Replace will substitute the existing shortcut (assigned to the chosen key command combination) with the selected function.
- OK will assign the key command combination to the selected function, while retaining the existing key command/function (in a different class).

Important: There is a hierarchy of key command classes, which are not merely separated into global and local key commands. As an example, there is a key command class that applies to all windows that display Regions. This class has higher priority than global key commands, but a lower priority than local (Arrange, Score, Matrix, and so on) window key commands.

Loop Length Editing

The Loop feature of Logic has been enhanced with an easy to use Loop Length Editing function.

To set the length of a looped Region:

- 1 Move the cursor to the end of the Region that you want to loop.

The cursor will change into a circular arrow (a loop) when positioned in the upper half of the Region.



- 2 Click-hold and drag the end of the Region to the desired length.

Note: Whenever you move the cursor into the upper half of the looped area, it changes to a circular arrow, allowing loop length changes. If you want to select the looped Region (to move it, for example), click in the lower half of the looped area. You can also Shift-click in the upper loop area to select the Region.

The cursor will only turn into the circular arrow (and offer the Loop Length Editing functions) when the track is of sufficient height. If the track height is minimal, Option-click on the end of the Region to access the Loop Length Editing function. This also applies if automation data is visible on a track.

Important: Deactivation of the Region Loop parameter resets the loop length. The next time the Loop parameter is used, the Region is repeated until it encounters another Region on the same track or the Song End point is reached.

Creating Multiple Tracks

This facility, accessible via the Tracks > Create Multiple menu option in the Arrange window (and corresponding key command), does exactly what it says. When selected, a dialog box opens, allowing you to choose the:

- **Driver:** This pull-down menu allows you to select the audio hardware driver that you wish to use for your newly-created tracks.
- **Track Type:** This pull-down menu allows you to choose between *Audio*, *Audio Instrument*, and *Auxiliary* tracks.
- **Number of Tracks:** Type in the desired number of tracks. Eight (8) is the default.

- **Mode:** Simply click on the desired *Mono* or *Stereo* radio button, to create multiple mono or stereo tracks of the chosen type.

The Create Multiple Tracks function is intelligent in the way it handles tracks, and underlying Audio Objects. To explain; imagine a song that contains four Audio tracks in the Arrange, but there are actually eight Audio Objects set up on the Environment's Audio Layer. Use of the Create Multiple Tracks function to add another four tracks to the Arrange will work as expected. The four existing tracks use Audio Objects 1 to 4, and the newly-created tracks use Audio Objects 5 to 8.

Marker Functionality

The Marker facilities of Logic Express 6 have been reinstated in Logic Express 7.1.

Markers are very useful for tagging particular time positions or sections in a song. They appear as text strings in the Bar Rulers of all Logic windows that contain them.

To create a marker:

- 1 Position the mouse cursor over the lower third of the Bar Ruler at the desired song location.
- 2 Press Option-Command and click.



- 3 Type the marker name into the Marker field.

The length of the marker is set automatically: the marker extends to the start point of the next marker, or to the end of the song or folder, if no ensuing markers exist.

To delete a marker:

- Grab it with the mouse in the Bar Ruler, and drag it down, out of the Bar Ruler. Release the mouse button when the cursor turns into a hand containing two arrows (see screenshot below).



Newly created markers are automatically named “Marker ##”. The “##” value indicates their order of appearance in the timeline, which will be displayed in the Bar Ruler as “Marker 1,” “Marker 2” and so on. The number always refers to the actual order of all markers in the song, including renamed markers.

To edit a marker name:

- 1 Double-click on the marker while holding down Control-Command.
- 2 A text entry field opens, allowing you to edit the marker’s name.

To change a marker’s position in the Bar Ruler:

- 1 Press Command and click-hold the marker in the Bar Ruler.
- 2 Drag the marker to the left or right.

To set the SPL to a marker:

- Press Command and click the marker in the Bar Ruler. The SPL is set to the start point of the clicked marker. Double-clicking starts playback at the marker start point.

Note: You can drag a marker up into the top third of the Bar Ruler. This will set a cycle area that matches the position and length of the marker (and thus the locator positions). If the sequencer is stopped when performing this action, the SPL will be moved to the cycle area start point.

Automation Tool

The Arrange Toolbox in Logic Express features the Automation tool.



This tool performs a number of automation tasks. When track automation is activated via the View > Track Automation menu option, a pull-down menu below the Toolbox allows you to define the functionality of the tool

Curve

If you choose this option, you can use the Automation tool to bend the line between two nodes or any selection (more than two nodes). There are four different curve types available: convex, concave, and two different types of S-curves.

Note: This function is also available when using the standard Pointer tool, by pressing Option-Control.

Select

If you choose this option, you can use the Automation tool to rubber band any selection (of nodes) in the automation data. A click on a Region selects all currently visible automation events within the Region borders. Once an area of (or the entire) Region is selected, you can freely move the selection to the left or right. With Option pressed, you can copy the selection to a different location. Please note that both operations will delete all nodes in the destination area.

Shift-clicking with the Automation tool selects other areas, in addition to an existing selection. This enables you to simultaneously edit non-adjacent selections.

Shift-clicking on a node with the Automation tool—in front of, or following, a selection—extends the current selection.

Removing Movies

The Options > Movies menu features a Remove Movie function, which allows you to completely remove a movie from a song or project. All references to the movie in the project or song are deleted. This function can also be initiated with the Remove Movie key command.

Arrange Region Handling

The handling of Regions in the Arrange window has been improved: selected Regions that overlap with unselected Regions are shown “on top”.

Many audio editing facilities have been enhanced since the release of Logic Express 7.

Logic Express 7.2 introduces direct playback of compressed audio files and split stereo file renaming enhancements, among others.

Direct Playback of Compressed Audio Files

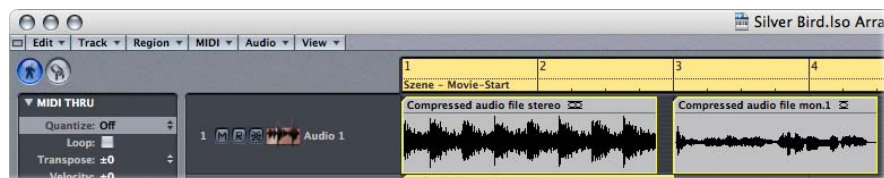
Logic Express 7.2 allows you to directly play back the following compressed audio file formats:

- AAC
- Apple Lossless files

These files are no longer automatically converted when imported into Logic. The compressed audio file is added to the Arrange window and a Region that encompasses the complete audio file is created. You can edit this Region in the same fashion as a “normal” Audio Region in the Arrange window: You can cut it, loop it, rename it, and so on.

Note: It is not possible to assign fades to compressed audio files, nor can you destructively edit them.

Audio Regions that point to compressed audio files are denoted by the following symbols:



The Project Manager can organize these compressed audio file types. The Audio File category in the Browse view now offers the Compressed subcategory. The Find mode Audio File filter also includes a new Compressed checkbox: Activate it to search for all compressed AAC and Apple Lossless audio files.

You can convert compressed AAC and Apple Lossless audio files by doing one of the following:

- Select the Audio Regions pointing to the desired audio file in the Arrange window, then choose Audio > Convert Regions to New Audio Files in the local Arrange window menu (or use the Convert Regions to New Audio Files key command; the default assignment is Control-F).

The part of the audio file spanned by the Audio Region is converted to a new audio file.

- Select the audio files in the Audio window, then choose Audio File > Copy/Convert File(s) in the local Audio window menu (or use the Copy/Convert File(s) key command).

Important: Compressed audio files protected by the DRM (Digital Rights Management) scheme can not be opened in Logic. Music bought in the iTunes Music Store is usually protected by DRM.

Working With the Follow Tempo Function

Audio files created in Logic Express 7.1 or Logic Express 7.2 can follow the song tempo (including tempo changes) and the first key signature set in the Global tracks.

As an example: If you record a bass solo at 100 bpm, you can change the song tempo to 120 bpm and the bass solo will automatically be played back at the new tempo.

The function works for all audio files that were recorded in, or bounced/exported from, Logic Express 7.1 and Logic Express 7.2. The function only works in the parent song (the song the audio files were created in). If you drag a file recorded in a given song to another song with the Finder, the file can not follow the song tempo. Bounced/exported files can only follow the song tempo, if the “Add resulting files to Audio window” option was enabled in the Export/Bounce window prior to the bounce/export. Files copied between two songs retain the ability to follow the song tempo.

The song’s tempo information is used to tag the beats in the recording. The function works best if your audio files match the song tempo as precisely as possible. The longer your audio files are, the more RAM is required for this functionality to work properly.

To make an audio file follow the song tempo and first key signature:

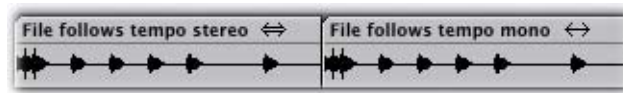
- 1 Select one of the audio file’s Audio Regions in the Arrange window.

If your audio file was created with one of the methods outlined above, the Follow Tempo option appears in the Region parameter box.

2 Enable the Follow Tempo option in the Region Parameter box.



All audio files that follow the song tempo and first key signature are indicated by the following symbols in Logic:



Note: Follow tempo is actually an audio file tempo operation, not a Region function, but was included in the Region parameter box for convenience. It is synchronized for all Regions that make use of the same audio file.

Follow Tempo and Apple Loops

The Follow Tempo option does not create an Apple Loop!

Remember: Apple Loops follow chord changes—should you record a solo over an arrangement consisting of Apple Loops with transposition changes over time, you might want to enable Follow Tempo for your solo, but you won't be happy with the double transpositions that will occur...

To create an Apple Loop, please use either of the following options:

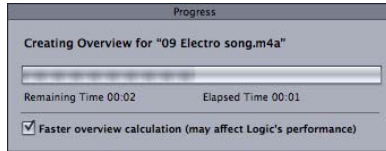
- Choose Region > Add to Apple Loops Library in the Arrange window. This method sets transients that are based on the song's tempo information.
- Choose Audio > Open in Apple Loops Utility in the Arrange window. This functionality allows you to set the transients manually—independent of the song tempo.

Please see “Creating Apple Loops” on page 48 for more information on creating Apple Loops.

The Region Parameter box of looped (not-one-shot) Apple Loops also offers the Follow Tempo option. If this option is disabled, the Apple Loop will not follow the song tempo and key. Disabling the Follow Tempo option for a looped (not-one-shot) Apple Loop does not convert the Apple Loop to a “standard” audio file.

Faster Overview Creation

The Overview Creation dialog features an additional option which accelerates overview creation. This makes overview creation as fast as the “foreground” overview creation of Logic 6 (at the cost of slowing down other operations, but not blocking user interaction completely).



Logic remembers the state of the “Faster overview calculation” option.

Renaming Split Stereo Files

You can now independently rename disconnected stereo files.

Warning: If you rename only one file of a disconnected split stereo file pair, it will not be possible to reconnect the disconnected split stereo file.

Logic Express 7.2 allows you to switch between Channel Strip settings by sending MIDI program change messages.

It also allows you to toggle the bypass status of Insert slots with one controller value. The following chapter outlines all mixing and bouncing enhancements made since the release of Logic Express 7. This includes support of stereo ReWire Objects, the Hand tool in the Track Mixer and Arrange window channel strips, Surround Pan window and Bounce window improvements.

Using Channel Strip Performances

You can now switch between Channel Strip settings by sending MIDI program change messages. This allows you to select your favorite “sounds” (consisting of a complete Channel Strip setting that can contain a software instrument and effect plug-ins) by pushing a button on your MIDI keyboard. This facility is named Channel Strip Performances.

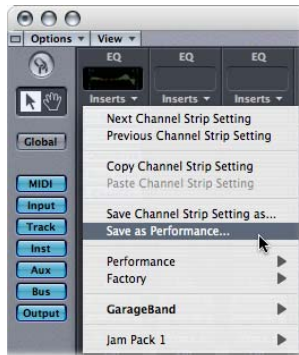
Important: Only program change messages sent on MIDI channel 1 will switch between Channel Strip Performances. All program change messages sent on other MIDI channels are forwarded to Audio Units instruments, if applicable.

Channel Strip Performances can be used for all Audio Object types. They are saved in the Performances subfolder (in ~/Library/Application Support/Logic/Channel Strip Settings/Audio Object name). The Performance names start with the corresponding Program Change number (as examples: 001Piano, 045FlangeGuitar, 111ArcoCelloHall). There are 128 Performances (corresponding to 128 available program change events).

To create a Performance setting:

- 1 Configure a channel strip that you would like to have available as a performance (by opening a Channel Strip setting from the factory library and making changes according to your needs, for example).

- 2 Open the Channel Strip Settings menu by clicking the word Insert on any channel strip, then choose “Save as Performance”.



- 3 In the ensuing dialog, enter a Performance name, choose a program change number and click OK.



You can also set the program change number by sending it from your MIDI controller.

Note: By default, the dialog will suggest the lowest, unused program change number. An alert will advise you of any attempt to insert a program change number that is already assigned. Click Overwrite if you want to replace the existing Performance assigned to this program change number.

As soon as an Audio Object receives a program change message on MIDI channel 1 that corresponds to an assigned Performance number, it will load this Performance.

Note: If an unassigned program change value is sent, the channel strip ignores the message, and the currently loaded Channel Strip Performance setting remains in place.

All saved Performance settings appear in the Performances folder of the Channel Strip Settings menu.



Multiple Selection of Channel Strips

The Multiple Selection of channel strips function (in the Mixer windows) has been enhanced: Clicking a channel background (without Shift held) also allows you to select further channels by dragging over them (in the background).

Automating the Bypass Status

Logic Express 7.2 allows you to toggle the bypass status of Audio Object Insert slots with a single controller value: namely controller value 64.

The addition of this feature results in the following behaviors for controllers 56 to 60:

- A value of 0 switches bypass off.
- Values 1 to 63 and 65 to 127 switch bypass on.
- Repeated use of value 64 switches between the two bypass states.

This facility allows you to switch the bypass state of Insert slots 1 to 5 with a single button, assigned to controllers 56 to 60, sending a value of 64. (Earlier versions required that two different values be sent; one to activate, and one to deactivate, the bypass status.) The following table lists the controller number used to switch the Bypass status of the corresponding Insert slot.

Insert No.	CC No.
1	56
2	57
3	58
4	59
5	60

This feature may prove particularly useful if you use a control surface that doesn't provide feedback. Imagine the following situation: you press the button on your control surface, sending a value that switches the bypass status of an Insert slot to off. The bypass status for this Insert is reactivated (turned on, with the mouse) in Logic. Your control surface will not reflect this change, if it doesn't support feedback, leading to nothing happening when pressing the appropriate button on your control surface. This new facility allows you to use one button to toggle the bypass status—regardless of state (bypass on/off).

Note: This facility also applies to the Mute and Solo buttons: If controller 9 sends a value of 64, the Mute button status is switched, if controller 3 sends a value of 64, the status of the Solo button is set to on/off—dependent on the current Solo status.

Support of Stereo ReWire Objects

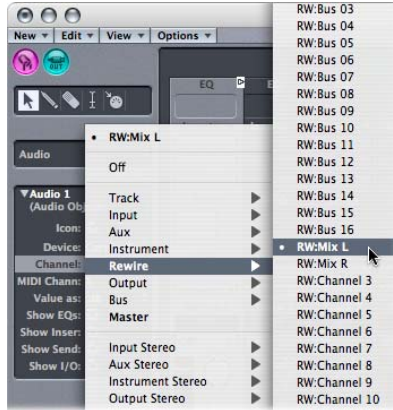
Logic Express 7.2 supports stereo ReWire Objects. This allows you to assign ReWire stereo streams to a single Audio Object and configure the Audio Object as stereo.

Note: ReWire is a system from Propellerhead Software that allows you to stream audio data between two audio applications in real time. You can use ReWire to stream audio data from Propellerhead's Reason software into Logic, for example. Further information about ReWire is found in the *Logic Pro 7 Reference Manual*.

To use stereo ReWire Objects in Logic Pro 7.2:

- 1 Start Logic, then start your ReWire application.

Logic displays the audio returns of ReWire-connected applications as Audio Object channels.



- 2 Select the desired Audio Object in the Environment, then choose the ReWire channel in the Channel menu of the Object Parameter box.

If you choose a stereo ReWire channel, the Audio Object displays the Mono/Stereo button.



- 3 Click this button to configure the Audio Object as stereo.

The button will show two interlinked circles, indicating that it is a stereo Object. You are able to insert stereo plug-ins, as in normal stereo audio tracks. The level meter will divide into two discrete meters, the pan control will work as balance control.

Note: Logic can only work as a ReWire host application, which means that you can stream audio *into* Logic, but you can not stream audio from Logic into another ReWired application.

Hand Tool in Track Mixer and Arrange Channel Strip

The Track Mixer Hand tool is used to move and copy plug-ins between channel strips.

To move a plug-in between two Insert slots:

- 1 Click the Hand tool in the Track Mixer Toolbox.
- 2 Select the (source) plug-in label and drag it to the desired target slot.



During the drag and drop operation, the potential destination is displayed as an orange rectangle (empty slot) or line (when placing an effect between two Insert slots—see below). Pressing Option during dragging copies the plug-in, rather than moves it.

You can also use the Hand tool in the Arrange window's channel strip by pressing Command (or right-clicking) when the cursor hovers over the Instrument or Insert slot.

Note: The Hand tool is the second default tool in the Track Mixer. Pressing Command while clicking enables you to switch from the Pointer tool to the Hand tool. This allows you to move plug-ins by Command-dragging them, and to copy them by Option-Command-dragging them.

If you drag a plug-in label onto a used plug-in slot in the same channel strip, the plug-ins are swapped. When dragged between different channel strips, the existing plug-in is replaced.

Placing Effects Between Used Insert Slots

If you drop an effect between two used Insert slots, the effect is inserted into a new slot between the two used slots. The effects below the insert point are shifted down by one slot.

If the effect's source location is above the destination location, all plug-ins between the source and destination locations are shifted up one position. If the plug-in's source location is below the destination location, all plug-ins between the source and destination locations will be shifted down one position.

Note: If all 5 Insert slots are used, you can not place effects between Insert slots.

Bouncing Enhancements

The Bounce facilities in Logic have been enhanced in the following areas since the release of Logic Express 7:

- AAC bounce options are now available in a single Sound Settings window.
- The Bounce dialog's Device menu allows you to choose between any recognized CD burners connected to your system.
- The default values for bounce start and end positions take a wider selection range into account.

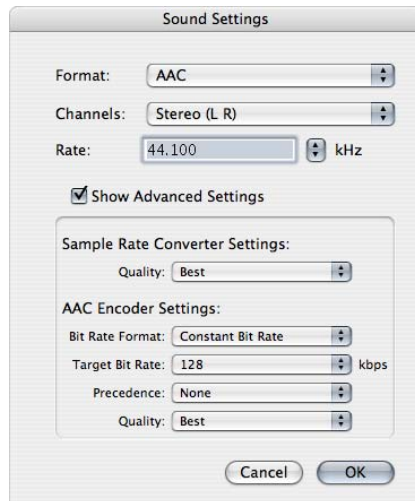
Streamlined AAC Sound Settings Window

The AAC (Advanced Audio Coding) bounce options are now available in a single Sound Settings window.

Note: AAC provides high-quality audio encoding, well suited for Internet, wireless and digital broadcast applications.

To access the AAC Sound Settings window:

- 1 Choose File > Bounce from the main menu bar (or use the Bounce key command).
- 2 In the Bounce dialog, activate the AAC option, choose a file name and destination, then click Bounce.



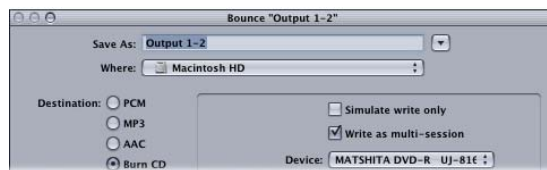
The AAC Sound Settings window offers the following settings:

- *Format*: Displays the selected compression codec.
- *Channels*: Allows you to choose between a mono or stereo output file.
- *Rate*: A number of predefined sample rates are available in this pop-up menu, ranging from 8000 Hz to 48,000 Hz. The Recommended option will select a rate based on choices made in the Advanced Settings.

- *Show Advanced Settings*: Activate this checkbox to show further AAC settings in the area below.
- *Quality (Sample Rate Converter)*: Sets the quality of the sample rate conversion. Reducing the quality accelerates the conversion process, but at the expense of audio quality. Keep this set to Best whenever possible.
- *Bit Rate Format*: You have a choice of Constant or Variable Bit Rate: Variable Bit Rate (VBR) encoding compresses simpler passages more heavily than passages that are (more) harmonically rich. Not all AAC players can decode VBR-encoded AAC data, which is why this option is set to Constant Bit Rate by default.
- *Target Bit Rate*: Sets the bit rate for the AAC export. The more kilobits per second, the better the audio quality.
- *Precedence*: Allows you to connect the bit rate and sample rate options. If you set Precedence to Sample Rate, the available Target Bit Rates are dependent on the selected Sample Rate. If you set Precedence to Bit Rate, the options available in the Sample Rate menu are dependent on the chosen Bit Rate setting.
- *Quality (AAC Encoder)*: Sets the quality of the AAC encoded bitstream. Reducing the quality accelerates the conversion process, but at the expense of audio quality. Set to Best whenever possible.

Choosing the CD Burner

The Bounce dialog in Logic Express offers a Device menu in the Burn options, which allows you to choose between any recognized CD burners connected to your system.



Start and End Position Default Values

The default values for the Start and End Position fields of the Bounce dialog also take Arrange window selections into account.

This means that the default Start and End Position values are set in the following ways:

- If the Cycle function is engaged, they will be set to the locator positions.
- If a selection (of one or more Regions) is made in the Arrange window, they will be set to the selected area.
- If neither of the above is valid, the Start and End Position values will encompass the entire Logic song.

The importation of MIDI file data has been improved since Logic Express 7.

These enhancements make it easier to import event-based MIDI data into Logic Express.

Importing MIDI Files

Opening and importing MIDI files behaved in a similar fashion in earlier Logic versions. Both the Import and Open commands loaded all data (including global information, such as tempo events) into a new song. This may not be the behavior one would normally expect from an “import”: usually an import only loads MIDI Region data (notes, controller, SysEx, pitchbend, specific meta events) into an opened song. This import behavior was available in previous Logic versions: when you dragged a MIDI file from the Finder into the Arrange window, only MIDI Region data was loaded. The MIDI Import menu command of Logic Express 7 initiates a “true” import.

To import a MIDI file, either:

- Choose File > Import from the main menu bar (or use the Import key command), then select the desired MIDI file in the ensuing file selector box.

Note: You can only import MIDI files if a “target” song is already open. If no song is open, the File > Import item is dimmed.

The MIDI file is placed at the SPL position, rounded to bars.

- Drag the desired MIDI file from the Finder into the Arrange window.

The mouse position—when the mouse button is released—determines the position (rounded to the nearest bar) and destination of the first track in the imported file.

Both methods only load MIDI Region data (notes, controller, pitchbend, SysEx, certain meta events), with global data (such as tempo events, signatures, chords, track names, SMPTE start and so on) being ignored.

If you want to load all information contained in a MIDI file, you must open it.

To open a MIDI file:

- 1 Choose File > Open from the main menu bar (or use the Open key command), then select the desired MIDI file in the ensuing file selector box.

If a song is loaded, a dialog will ask if you want to create a new environment or copy the current environment for the MIDI file.

- 2 Do one of the following:
 - Click Copy to replicate the existing environment. The tracks of the MIDI file are automatically assigned to suitable instruments.
 - Click New to load the environment of the default song template (this template is based on choices made when you ran the Logic Setup Assistant).

The MIDI file is loaded as a new song that contains all MIDI events—inclusive of time positions and channel assignments, names of individual tracks, names and positions of markers, tempo changes and copyright marks.

The extensive support for control surfaces has been further enhanced since the release of Logic Express 7.

Direct support for a number of control surfaces has been added, and several key usability and assignment facilities have been improved. These include the track control bar and key repeat functions.

Additional Control Surface Support

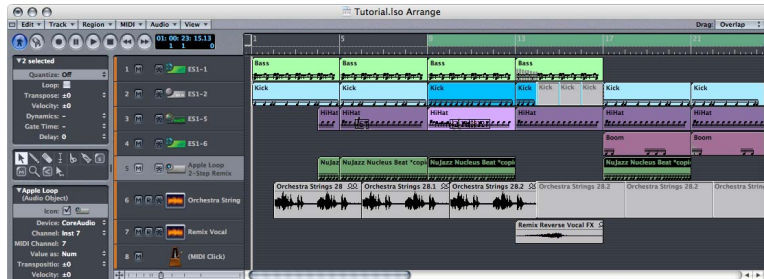
In order to keep Control Surface support current, the following control surfaces are now directly recognized by Logic:

- M-Audio iControl
- Tascam US-2400
- Tascam FW-1082
- Frontier TranzPort
- JL Cooper CS-32
- JL Cooper FaderMaster 4/100
- Korg microKONTROL
- Korg KONTROL49

Note: For further information about the individual control surfaces, please refer to the *Control Surfaces Support* document—found in the Documentation folder of the Logic Express 7.2 Installation DVD.

Working With the Track Control Bar

When a control surface is connected to Logic Express 7.2, the Track Control Bar is displayed in the Arrange window. This bar indicates the tracks that are currently being accessed by your control surface.



This bar is available for all control surface devices connected to your system. The Track Control Bar of each control surface can be assigned a different color. The bar color is set in the Device parameter box.

To change the Track Control Bar color:

- 1 Choose Logic > Preferences > Control Surfaces > Setup to open the Control Surfaces Setup window.
- 2 Select the appropriate control surface icon.

The Device Parameter box appears, featuring the Color option.



- 3 Click the Color option.

This launches a color palette, allowing you to choose or create the desired color.

New Key Repeat Function

Logic Express 7.2 provides updated control surface plug-ins that support the Key Repeat function (if useful and/or applicable to the device). When active, the key command function being triggered via a controller assignment is continuously executed for as long as the button or switch is held down.

The length of time before Logic begins to repeat the assignment is determined by the Key Repeat Rate—set in the Mac OS X Keyboard & Mouse preferences. The duration that the button/controller must be held for, before the assignment is repeated, is set with the Key Repeat Rate slider in the Keyboard & Mouse preferences.

As an example: The Logic Express 7.2 key command assignment for the Zoom buttons in the Logic Control plug-in supports the Key Repeat function. You can simply hold down the Zoom In button and Logic will zoom in until the Zoom In button is released. This mirrors the behavior of the Zoom key commands. In earlier versions, you had to repeatedly press the (Logic Control) Zoom buttons to zoom in/out more than one level.

Intermediate Stop at Default Value

Pressing the Option button on your control surface, while editing a parameter assigned to a rotary encoder, enters “Relative Controller mode”. In this mode, a turn to the right sets the encoder to its maximum value. A turn to the left sets the encoder to its minimum value. Logic Express 7.2 enhances this mode: it now also stops at the encoder’s default value.

As an example: When the Pan knob is somewhere left of center, turning the encoder to the right—with Option pressed—will initially set the pan parameter to its center (default value) position, with a further right-turn setting the full right (maximum value) position.

Modal Dialogs Display

All modal dialogs (except file selector boxes) are now shown on control surfaces that feature LCD text displays.

All text fields are shown in the display’s upper row (if applicable to the device). If the dialog text does not fit into the LCD’s upper row, it will start scrolling after three seconds. You can scroll the dialog text manually with the appropriate control (see assignment tables in the relevant Control Surface Support documentation). Manual text scrolling disables automatic scrolling.

- If there is an Enter or OK button on the control surface, it triggers the dialog’s default button, where applicable.
- If there is a Cancel or Exit button on the control surface, it triggers the button labeled Cancel or Abort, where applicable.

- All buttons (push buttons, including Enter/default and Cancel, as well as checkboxes and radio buttons, but not pop-up buttons) are shown in the display's lower row (if applicable to the device). Pressing a control surface button below the display triggers the appropriate button/function in the dialog, where relevant.

Following use of the Enter/Cancel button on the control surface (or with the mouse), the dialog will disappear, and all controls and displays will return to their previous state/mode.

Mackie Control Mode Support

Logic Control, Logic Control XT, Mackie Control Universal and Mackie Control Extender (all with firmware version 1.02 or higher) units no longer need to be switched to Logic Control mode, to be recognized by Logic.

If you use software that requires Mackie Control mode:

- 1 Switch to Mackie Control mode. (Details can be found in your control surface documentation).
- 2 Delete the Logic Control control surface in the Control Surfaces Setup window.
- 3 Turn on the power for your control surface. It will automatically be installed as a Mackie Control. The functionality of both modes (Mackie/Logic Control) is identical.

Note: If you don't use software that requires Mackie Control mode, there's no need to change anything.

Controller Assignments Editor Enhancements

The Easy View of the Controller Assignment window has been simplified. The Control Name field has been removed, because Easy View is generally used for unsupported control surfaces—such as the controllers on your master keyboard or other fader boxes.

The Track parameter allows you to choose between selected (which is the default, if creating assignments on the selected track) or a fixed track number (if you want to set up your controls as a mixer surface).

The Learn Message button has been renamed to Learn Mode (because you can create multiple assignments while it's enabled).

Assignments created for a specific plug-in are only active if the plug-in is present on the specified track. This enables you to use the same controller messages for different plug-ins—to control the cutoff frequency of ES1, ES2, or EXS24 via the same knob, for example—depending on which software instrument is inserted in the selected track.

Your assignments are stored as preferences, making them available in all songs.

The support of Apple Loops in Logic Express brings a range of flexible options to your music-making palette.

This chapter covers their use in Logic Express, information on Apple Loop creation and further material that will aid you in making the most of the facilities available.

Logic Express ships with a number of Apple Loops, as does GarageBand. Apple Loops are AIFF format audio files that contain PCM audio data. Apple Loops can be used in any audio application that supports AIFF files. In comparison with “standard” audio loops, Apple Loops have a significant advantage: they can contain additional information that Logic Express uses for a variety of purposes, including automatic time and pitch shifting, indexing and searching.

Two important data types that Apple Loops may include are; metadata tags and transient markers. Logic Express uses metadata tags to help locate files when using the Search features of the Loop Browser. Transient markers indicate where beats occur in the file. Logic Express uses this information, in conjunction with the metadata tags, to match the file’s tempo and key to the song tempo and key, thus ensuring the best possible playback quality.

Green and Blue Apple Loops

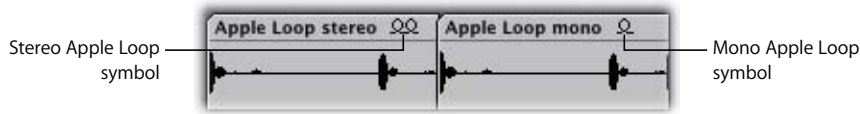
There are two types of Apple Loops: those featuring a blue sound wave icon and others with a green note icon (these icons are shown in the Loop Browser).

Green and blue Apple Loops in the Loop Browser

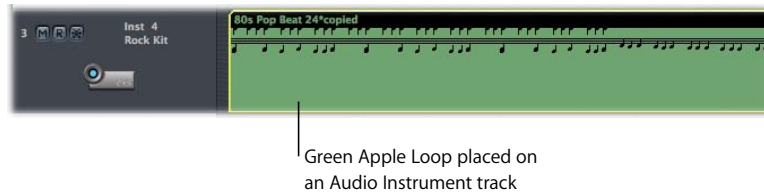
	Name	Match	Tempo	Key	Beats	Fav
🟢	DnB Rush Beat 02	43%	170	–	8	☐
🟢	DnB Rush Beat 03	43%	170	–	8	☐
🟢	DnB Shy Beat	42%	170	–	16	☐
🟢	DnB Simple Beat	42%	170	–	16	☐
🟢	DnB Slide Beat	61%	150	–	16	☐
🟢	DnB Thin Beat	42%	170	–	16	☐

Both contain uncompressed PCM audio data, and both may contain additional information for time stretching, transposition, indexing and searching.

Green and blue Apple Loops can be added to audio tracks. They look like normal Audio Regions, but can be easily identified by the Apple Loop symbol in the upper right corner. They follow the song key and tempo.



Apple Loops that feature the green icon can also be placed on Audio Instrument and MIDI tracks. On such tracks, these files can be edited just like other MIDI Regions, including individual note editing.



Another interesting thing about the green Apple Loops is that if dragged onto a “blank” Audio Instrument track (one with an empty channel strip), the corresponding instrument, effect(s) and input setting are automatically inserted. These instruments can be played in the same fashion as Logic Express audio instruments. Green Apple Loops carry all information contained by the blue Apple Loops, but also contain a MIDI Region plus software instrument and plug-in settings. Green Apple Loops are known as SIALs (Software Instrument Apple Loops).

▶ **Tip:** When you place SIALs on audio tracks, they are imported as Audio Regions. This reduces the audio processing required for playback.

Adding Apple Loops

There are several ways to add Apple Loop files to your Logic song. Logic Express offers a special Loop Browser that enables you to search for Apple Loops, using key words for instrument, genre, mood, and other descriptors. You can also import Apple Loops in the same way as audio files.

To add an Apple Loop to your arrangement, do one of the following,

- Open the Loop Browser by choosing Audio > Loop Browser (or use the Loop Browser key command). Select the desired Apple Loop file, and drag it into the Arrange window, where you can drop it at the desired position.



More information on the Loop Browser is found in the section on “Working With the Loop Browser” on page 44.

- Drag the desired Apple Loop file directly from the Finder into the Arrange window.
- Select the Pencil tool, and Shift-click on the desired track in the Arrange window (or choose Audio > Import Audio File from the main menu bar; you can also use the Import Audio File key command). This will launch a standard file browser. Browse to the folder in which your Apple Loops reside (See “Apple Loop File Paths” on page 63 and the information on the Jam Pack Management pull-down menu in the Loop Browser section.)

When you add an Apple Loop to an audio track, it is automatically matched to the tempo and key of the song. This functionality allows you to play back several Apple Loops simultaneously, and have them sound good, even if they have different tempos and keys.

When you add a SIAL to an Audio Instrument track, it is displayed as a MIDI Region. If the track’s channel strip is empty, the corresponding software instrument, effects and settings are also loaded.

Working With the Loop Browser

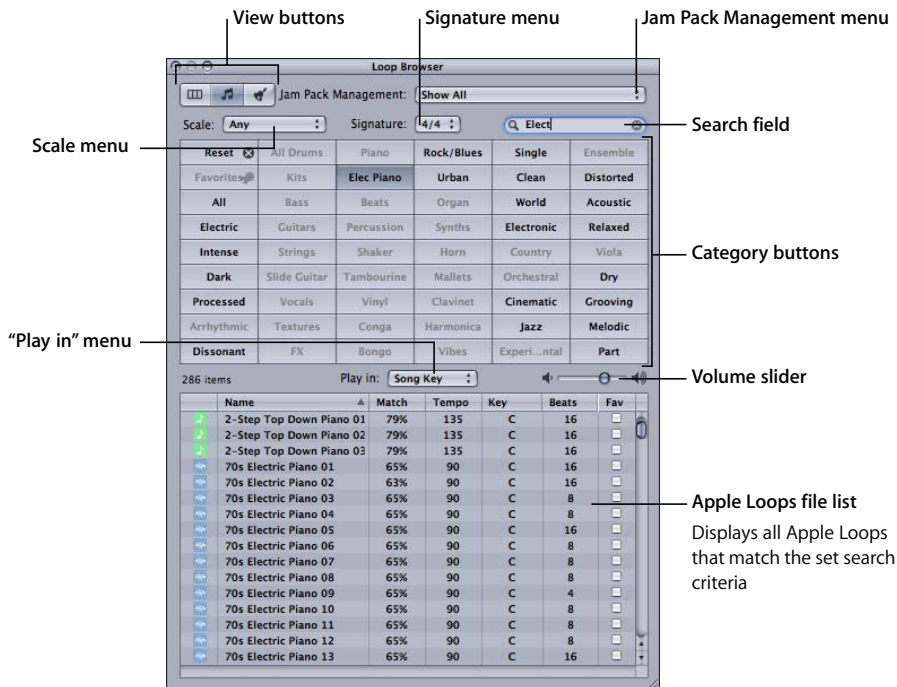
The Loop Browser is designed to make finding Apple Loops an intuitive and fast process. You can search for loops by using keywords, perform text searches, preview loops, view information about loops, and limit the display to loops from a specific Jam Pack or loop library.

To open the Loop Browser, do one of the following:

- Choose Audio > Loop Browser.
- Use the Loop Browser key command.

The Loop Browser Interface

The default view of the Loop Browser shows a matrix of 54 buttons, each featuring a category name. Simply click on the desired button(s) in the matrix to narrow your search for appropriate Apple Loops. Activated buttons are highlighted. Multiple categories can be selected, either in conjunction with the Jam Pack Management, Scale and Signature pull-down menu options, or not.



The *View* buttons at the top left switch between three view types. The first button from the left, featuring the three rectangles, switches to a standard Mac OS X column file menu that is hierarchically separated into All, By Genres, By Instruments, By Moods, and Favorites search criteria. The second button from the left (featuring the note icon) switches to the “normal” Matrix view mode, showing musically-related categories. The third button from the left (featuring the bell icon) switches to Sound Effects view, offering effect-related category buttons such as Explosions, Foley, or People.

You can replace a displayed category via the shortcut menu that opens when you Control-click (or right click) on any category button. You can choose from:

- *Genre*: This sub-menu offers musical categories, and for example includes Rock/Blues and Electronic.
- *Instruments*: Bass, FX, Vocals, and the Textures and Jingles options are available, amongst others.
- *Descriptors*: The options in this sub-menu cover the “mood” of Apple Loops, and include Dark, Relaxed, Grooving, and others.

Basically, the Loop Browser displays all indexed loops in the system. When a high number of Apple Loops is installed on your system, this might become rather complex to administer. To keep things tidy, the Loop Browser offers advanced loop management tools. The Jam Pack Management pull-down menu allows you to limit the display to loops from a specific Jam Pack or other folder. Jam Packs are professionally-created genre or instrument-specific Apple Loop collections, available from Apple.



Simply select the desired option from the Jam Pack Management menu. You can choose between:

- *Show All*: Choose this default option to display all Apple Loops on your system. It is extremely handy if you are unable to locate a loop that you know is installed and indexed on your system, but do not know what Jam Pack it belongs to.
- *My Loops*: Choose to display all Apple Loops in the ~/Library/Audio/Apple Loops and ~/Library/Application Support/GarageBand folders (~ denotes the User name).
- *GarageBand*: Choose to display all Apple Loops installed with GarageBand.
- *Jam Pack x*: Choose to display all Apple Loops from a specific Jam Pack.
- *Vendor x*: Choose to display all Apple Loops from a specific third-party vendor.

The *Scale* pull-down menu offers Any, Minor, Major, Neither and Good For Both options. Use of these options limits the search for Apple Loops to the selected Scale type, within the chosen category. As an example, if Country, Acoustic and Relaxed categories were selected, you would be presented with twenty or so files that matched your choices. Selection of the Minor Scale option would reduce this list to ten possible Apple Loops, making the task of auditioning and selecting the most appropriate material faster.

The *Signature* pull-down menu performs a similar task to the Scale menu, but limits searches to Apple Loops that match the selected time signature.

The *Search field* is used to find Apple Loops by name or partial name:



- Type in the desired search term, and press the Return key. Any files that match your search term will be displayed in the file browser at the bottom of the window.
- The *Cancel* button to the right (which appears as soon as any text is entered) clears any entered text. It also clears the search history.

The “Play in” pop-up menu determines the playback key of the selected Apple Loop. Choices include: Song Key, Original Key, and C through to B.

The Volume fader adjusts the playback level of the selected file in the Loop Browser window.

The list at the bottom of the window displays all Apple Loops that match the criteria set with the parameters discussed above.

- Clicking on any of the column titles will sort the list of results by Name, Match, Tempo, Key and so on.
- Clicking on the arrow in any *selected* column title will sort the list in ascending or descending alphabetical, match percentage, tempo, key, beat or favorite order.
- Columns can be resized by dragging the vertical lines between column titles.
- Selection of any entry in the list of files will automatically begin playback. You can stop playback by clicking on the speaker icon in the left-hand column.
- The Fav (Favorites) column offers a checkbox for every displayed loop. Simply check this box to add the loop to the Favorites category (for more information, see “Working With Favorites” on page 48).

Adding Apple Loops to the Loop Browser

Logic Express must index Apple Loops before they are shown in the Loop Browser. Loops can reside in any directory, but you need to tell Logic Express where to find them.

To add Apple Loops to the Loop Browser:

- 1 Open a Finder window alongside Logic Express.
- 2 Navigate to the folder that contains the Apple Loops.
- 3 Select the Apple Loops in the folder and drag them into the Loop Browser.

The loops are added to the Apple Loops library and indexed. When this process is finished, the loops will be available directly in the Loop Browser.

If you drag a single loop to the Loop Browser, the loop will be copied to ~/Library/Audio/Apple Loops/User Loops/SingleFiles.

If you drag a folder of loops that are located on the same drive and partition as the Loop Browser, the loops will be left at their current location, and an alias of the folder will be created in ~/Library/Audio/Apple Loops/User Loops.

If the loops are located on a different drive or partition, you'll be asked whether you want to copy them to the loop library, or index them at their current location (loops added from optical media will always be copied).

- If you choose to copy them, the folder containing the loops will be copied to ~/Library/Audio/Apple Loops/User Loops/.
- If you choose to index them at their current location, an alias to the folder will be created in ~/Library/Audio/Apple Loops/User Loops/.

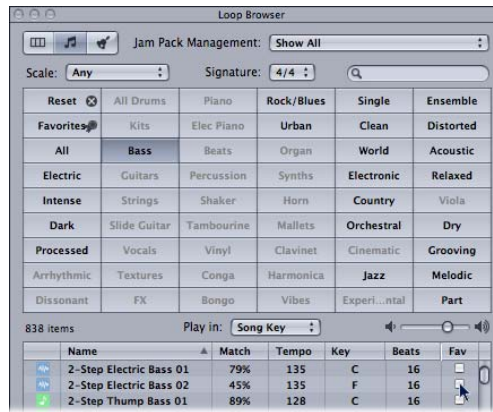
Acid Loops in the Loop Browser

The Loop Browser also displays Acid Loops. Acid Loops don't contain "tags" like Apple Loops. In Acid Loops, this information is derived from the surrounding folder structure (especially the names of folders), which must comply with certain standards. This means that it's not possible to drag an individual Acid Loop file into the Loop Browser.

As such, you need to drag the entire CD (or folder) that contains the Acid Loops into the Loop Browser.

Working With Favorites

The Fav (Favorites) column in the list at the bottom of the Loop Browser offers a checkbox for every displayed loop. Simply check this box to add the loop to the Favorites category.



This facility is ideal for compiling a collection of Apple Loops that you use regularly. As a producer of dance-floor music, you may often construct songs by starting with drum loops. You could conceivably have a basic “four on the floor” kick pattern, eighth and sixteenth note hi-hats, two or four beat snare or clap patterns and so on, and use these favorite loops as a groove construction kit—at least while creating your shell arrangement.

These loops can be easily replaced or added to as your project advances, but the use of favorites may form a great starting point for many of your songs.

Creating Apple Loops

You may wish to create an Apple Loop from an existing audio recording as Apple Loops offer the advantages of automatic time stretching and transposition over other audio file formats.

You can save both Audio and Audio Instrument Regions as Apple Loops in Logic. The set transients are based on the song’s tempo information. For more information on this method, see the following section.

You can also use the Apple Loops Utility to create Apple Loops from Audio Regions. The Apple Loops Utility is a companion application to Logic Express that allows you to manage metadata tags and transients in audio files. The Apple Loops Utility offers sophisticated tag editing functions for audio files. You can, for example, set the transients manually—independent of the song tempo. (for more information read “Creating Apple Loops in the Apple Loops Utility” on page 52).

Note: The Apple Loops Utility does not allow you to create SIALs.

Which tool to use, and when to use it?

As mentioned above, Logic Express offers Apple Loops creation facilities, and the separate Apple Loops Utility also allows you to construct your own Apple Loops.

You have a fairly simple decision path to follow:

- If you want to create an Apple Loop from an audio file that matches the song tempo, use the Apple Loop creation utilities available in Logic Express.
- If you want to create a Software Instrument Apple Loop (SIAL), use the Apple Loop creation utilities available in Logic Express.
- If you want to create a non-looped Apple Loop from an audio file that does not match the song tempo, use the Apple Loop creation utilities available in Logic Express. Non-looping Apple Loops (or one-shots) do not follow the song tempo and key. This is useful if you want to add discrete, non-musical sounds (such as sound effects) to the loop library, which should not be altered by the tempo and key properties.
- If you want to create a looped Apple Loop from an audio file that does not match the song tempo, use the Apple Loops Utility.

Read the following section if you want to create Apple Loops in Logic. Information on “Creating Apple Loops in the Apple Loops Utility” can be found on page 52.

Creating Apple Loops in Logic

When you save a Region as Apple Loop in Logic Express, the Region is added to the loop library and appears in the Loop Browser, allowing its use in other songs.

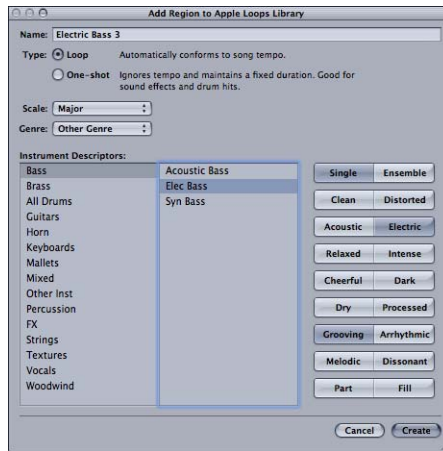
The tempo information of the song is used to tag the transients of user-created Apple Loops. This function works best if your audio files match the song tempo as precisely as possible.

Note: User-created Apple Loops behave exactly like the Apple Loops that ship with Logic, GarageBand and Jam Packs: They follow the tempo of your song and match the song key (as defined by the initial key signature).

To create an Apple Loop in Logic:

- 1 Select the Audio or Audio Instrument Region in the Arrange window.
- 2 Choose Region > Add to Apple Loops Library in the local Arrange menu.
- 3 In the Add Region to Apple Loops Library dialog:
 - Type in a name for the loop, choose the scale, genre, instrument category, instrument name and appropriate mood descriptions—to simplify searches.

- Set the file type, which can be One-shot or Looped. If the length of the audio file is not precisely trimmed to contain a number of whole bars, One-shot is selected automatically, and the file type buttons are dimmed.



Note: One-shots do not follow the song tempo and key. This is useful if you want to add discrete, non-musical sounds (such as sound effects) to the loop library, which should not be altered by the tempo and key properties. These types of loops still contain metadata tags, allowing easy searching and categorization in the Loop Browser.

4 Click Create.

The loop is added to the Loop Browser. It will be stored in ~/Library/Audio/Apple Loops/User Loops/SingleFiles. You can find it by using the keyword buttons, menus, or by typing the name in the Search field. If you drag the loop into the Arrange window, the Apple Loops symbol is shown beside the file name. As one-shots are handled like normal audio files, the usual stereo or mono Region symbol is shown alongside the file name (rather than the Apple Loops symbol).



If you want to create a looped Apple Loop from an audio file that does not match the song tempo, you should use the Apple Loops Utility. The Apple Loops Utility allows you to define the intended length of the loop, regardless of the song tempo, by setting the Number of Beats and Time Signature tag manually. Please note that the utility only works with Audio Regions—not with MIDI regions on Audio Instrument tracks. For further information about the Apple Loops Utility, see “Creating Apple Loops in the Apple Loops Utility” on page 52.

You can also adjust the song tempo to the file length. Logic Express offers an automatic function that matches the length of an Audio Region with the intended musical length. The length of the Region remains constant, but the sequencer tempo is varied automatically, with the Region playing back at the intended length.

To adjust the song tempo to an audio file:

- 1 Create an Audio Region that spans the complete audio file.
- 2 Construct a cycle in the Arrange window Bar Ruler. Set the length to match the intended musical length of the Region. As an example: If the Audio Region is one bar long, set a cycle length of one bar.
- 3 Do one of the following:
 - Choose Options > Tempo > “Adjust Tempo using Region Length and Locators” from the main menu bar.
 - Use the “Adjust Tempo using Region Length and Locators” key command (default key command assignment: Command-T).

The tempo is recalculated, the Region (and the referenced audio file) matches the song tempo.

Send Effects in Software Instrument Apple Loops

If you create a SIAL from a Region on an Audio Instrument track that uses sends to bus effects, and then drag the saved loop to another (empty) Audio Instrument track, the new loop will sound different to the original source Region. This happens because the effects sends in the original track are not saved with the loop.

Logic Express does not automatically assign effects to busses, because doing so would potentially interfere with bus configurations that you’ve already set up in your song. Effects that are inserted directly on the Audio Instrument channel will, however, be automatically recalled when the loop is dragged to the Arrange window from the Loop Browser.

You can use one of the following options to ensure that loops created from Audio Instrument Regions will sound the same as the original Regions:

- Drag your SIAL (the original of which was assigned to bus sends) to an audio track instead of an Audio Instrument track. When you create an Audio Instrument loop, the audio file that is rendered will include any bus processing. This will sound identical to the original.
- When creating a loop from an Audio Instrument Region, insert all effects needed to reproduce the desired sound directly into the instrument's channel strip. This will allow a faithful recreation of all sound elements when you subsequently add the loop to an Audio Instrument track.
- When using SIALs, manually set up the sends and bus effects needed to reproduce the sound of the original Region.

Creating Apple Loops in the Apple Loops Utility

The Apple Loops Utility provides sophisticated functions for creating Apple Loops from Audio Regions. It can detect transients present in an audio file, and you can add markers for additional transients. You can also move these markers to new locations.

You can add and edit metadata tags; you can also tag multiple files, a process known as batch tagging. The Apple Loops Utility can read both AIFF and WAV files. If you save changes, the file is automatically saved as an AIFF file.

To create an Apple Loop in the Apple Loops Utility:

- 1 Select an Audio Region in the Arrange window.
- 2 Do one of the following:
 - Choose Audio > Open in Apple Loops Utility from the local window Audio menu.
 - Use the Open in Apple Loops Utility key command.

If the length of your audio file does not match the beats, the following dialog appears:

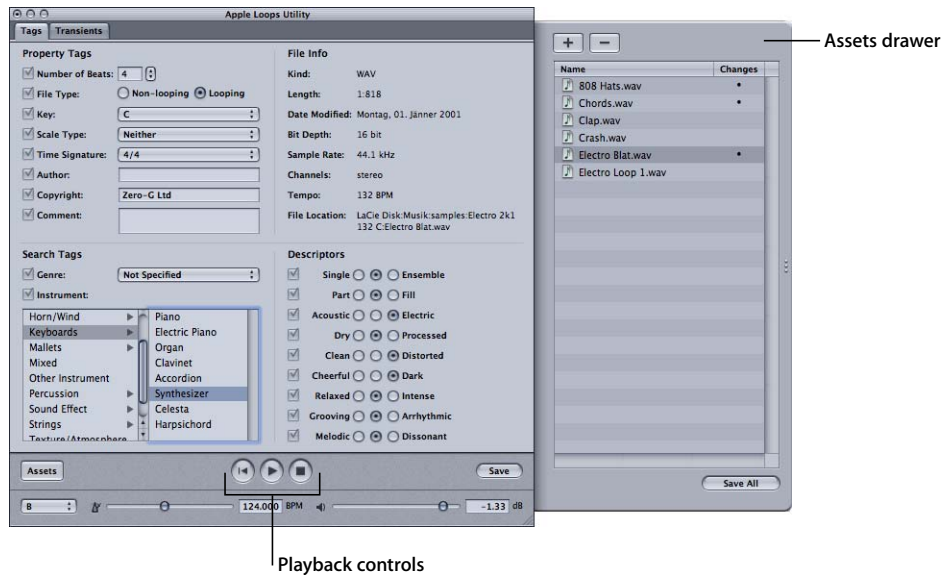


There are two possible reasons for the wrong length:

- The audio recording was recorded at the song tempo, but not cut correctly. In this situation, you can reduce the length of the recording, via the dialog.
- The loop uses a different tempo. In this case, you can set the length of the audio loop in the "Loop length" box and choose "Use set length".

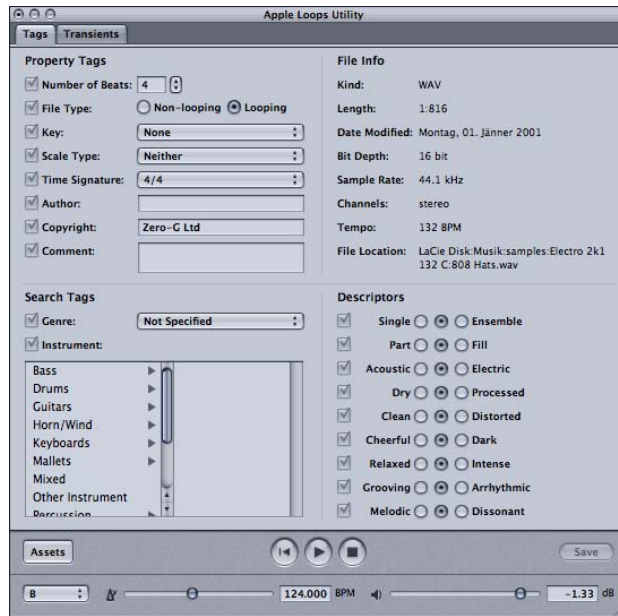
The Apple Loops Utility Interface

The Apple Loops Utility window consists of the Tags and Transients panes. The bottom of the window includes a set of playback controls and file management buttons. The Apple Loops Utility also includes an Assets drawer, located to the right of the main window, where you can manage open files.



Tags Pane

The Tags pane is divided into four areas. In three of the sections, you edit different types of tags. In the fourth area, you view information (that cannot be edited in the Apple Loops Utility), such as the length and location of the file. The more metadata (tag) information you include with your files, the more accurate your searches will be in the Loop Browser.



Property tags

Logic Express uses the settings for the Number of Beats, Key and Time Signature property tags, in conjunction with the transient markers, to optimize playback of the Apple Loop. Changing these affects how the loop sounds when it is played back. The remaining property tags can be used to include additional information, but do not affect playback.

The Number of Beats field allows you to enter the correct number of beats in a file. This number controls how Logic Express matches the tempo of a loop to the song tempo. When you open an Audio Region in the Apple Loops Utility for the first time, Logic Express sends the following information to the Apple Loops Utility:

- The song tempo.
- The length of the audio file in beats.

Provided that the audio file matches the song tempo, and that its length fits a whole number of beats (or you entered the correct length in the “Open Audio File in Apple Loops Utility” dialog), the Apple Loops Utility sets the correct default value for the Number of Beats field.

Note: If you open an audio file directly in the Apple Loops Utility this information is not available. In this situation, the Apple Loops Utility uses different assumptions to set the Number of Beats value. Please consult the Apple Loops Utility manual for more information on this.

The File Type tag allows you to set the file type, which can be Non-Looping or Looped. Looping files are matched to the song tempo and, if the Key tag is set to a value other than None, are matched to the song key. Non-looping files (or one-shots) are not matched to the song key or tempo. If you import them into Logic, they behave like “normal” audio files. This is useful if you want to add discrete, non-musical sounds (such as sound effects) to the loop library, which should not be altered by the tempo or key properties. Non-looping audio files still contain metadata tags, allowing easy searching and categorization in the Loop Browser.

In general, you will tag files featuring rhythmic patterns or musical passages intended for music composition and arranging as “looping,” allowing Logic Express to match them to the song tempo and (for musical, pitched loops) the song key. Files with non-rhythmic elements, such as sound effects and voice-overs, intended for occasional use on soundtracks, should usually be tagged as non-looped.

The Key tag controls how Logic Express matches the key of a loop to the song. When you import the loop into Logic Express, it matches the key of the loop to the song by transposing the loop the required number of semitones. The loop is either transposed up or down, in whichever direction requires the smaller number of semitone steps.

As an example: If the song key is C, and the given loop’s Key tag is D, Logic Express transposes the loop up by two semitones (instead of transposing it down by ten semitones). Both would match the loop to the song key.

The global playback key for Apple Loops is determined by the very first key signature in the Signature track (default: C major).

No distinction is made between major and minor keys for these global transposition functions; in fact, only the root of the initial key signature is relevant for playback of Apple Loops and MIDI Regions.

By default, Apple Loops Utility sets the Key tag to the information Logic Express provides in the Signature track.

The Scale Type tag identifies the file's scale type. It only serves as a search tag and has no effect on the sound of the loop. Changing a loop's Scale Type does not affect the scale of the loop. Again, this defaults to the information Logic Express provides, courtesy of the Signature track.

Music uses various scale types. The main types are the major and minor scales. Musical loops in the same key (with the same root note) may not sound appropriate when played together, if their scale type differs. As an example: A loop with a piano chord progression in the key of D and a loop with a synth line also in the key of D, may not sound "right" if the piano loop uses the D major scale and the synth line uses the D minor scale.

The Scale Type menu offers the Major, Minor, Good for Both and Neither choices. The latter option is suitable for percussive, non-pitched material. Loops that can work in either scale are best tagged as Good for Both.

The Time Signature tag provides the following information about a loop: the number of beats in each measure and the note lengths of the beat value. Logic Express uses the number of beats in a measure to display the measure and beat positions in the Bar Ruler. This value does not affect playback. If the beat value is not set correctly, playback is affected. The Apple Loops Utility sets the Time Signature tag to the value provided by the Signature track in Logic. If you use loops with a different beat value, these loops are played back at the wrong tempo. Correct the Time Signature tag, so that it indicates the beat value correctly.

The Author and Copyright tags offer a place to name the author of a loop and copyright information. The Comment field displays any comments about the file. This field is often used to indicate an internal file name or code number that was used during the creation of a loop library. These three tags are not displayed in the Loop Browser in Logic. They can not be used to search for files, and serve only as a place to include text information. They do not affect the sound of a loop.

Search tags

These tags are used by the Search feature in the Loop Browser, allowing you to search for files that match specific criteria.

- *Genre pop-up menu*: Defines the type or style of music for which the loop is appropriate. The list of musical genres is not editable.
- *Instrument list*: Displays choices for the musical instrument or instrument category of the file. Selecting a category in the left column displays a list of instruments/sub-categories in the right column.

File Info

This area of the Tags pane includes rows that offer Kind, Length, Date Modified, Sample Rate, Channels, Tempo and File Location information. This file information can only be viewed, and cannot be edited in the Apple Loops Utility.

Descriptors

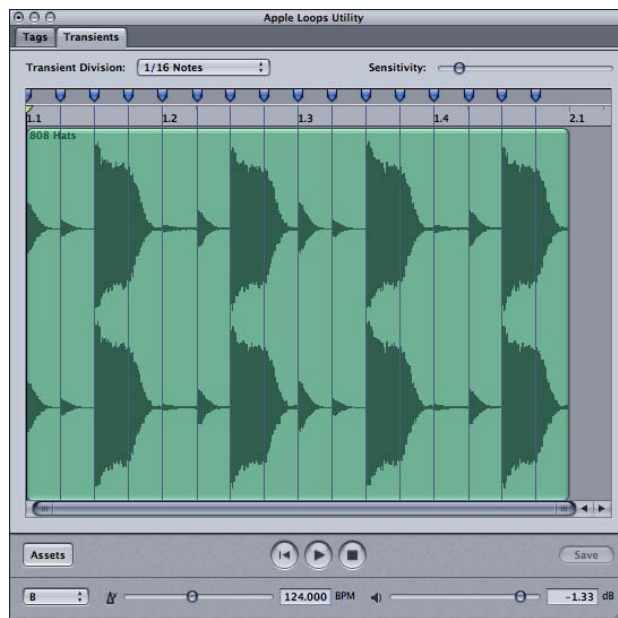
The Loop Browser in Logic Express allows you to search for files using descriptors. Descriptors are complementary pairs of keywords that describe the musical mood or character of the file. Each pair of keywords offers a row of radio buttons, allowing you to choose either one keyword from the pair, or neither keyword.

Tagging Files

To tag a file, select it in the Assets drawer, then edit the file's tags in the Tags tab. You can change the tags of multiple files at the same time. To do so, simply select the desired files in the Assets drawer, activate the appropriate tag checkboxes, make your edits, and save.

Note: If you do not assign tags to a loop, it will be difficult to find in the Loop Browser. The Loop Browser only displays loops in its file list if a category is chosen, or if a name is typed into the Search field. As such, if a loop does not belong to a category, you can only search for it by typing its name into the Search field.

Transients Pane



Logic Express uses transient markers, along with the Number of Beats, Key and Time Signature tags, to process a loop during playback. You can add and edit transient markers in the Transients pane of the Apple Loops Utility.

The Transients pane contains a large waveform display, a beat ruler and a horizontal scroll bar. Markers indicate the position of transients in the file. Typically, transients correspond to the (vertically) widest parts of a sound's waveform (the peaks in the waveform, in other words). The Transient Division pop-up menu and the Sensitivity slider determine the placement of transient markers in a loop.

The Transient Division menu sets the beat value used by the Apple Loops Utility for transient detection. The Sensitivity slider sets the degree of sensitivity for transient detection. When you increase the sensitivity of transient detection, the Apple Loops Utility considers points of higher amplitude in the waveform as transients, regardless of whether or not they occur on a beat value.

When you open a file in the Apple Loops Utility, it defaults to looking for transients at every 16th note position, based on the file's tempo and Number of Beats tags. You can change the beat value used for transient detection via the Transient Division pop-up menu. The range covers Whole through to 1/64th notes.

The waveform display in the Transients pane shows both the transients detected by the Apple Loops Utility and user-inserted transients. You can add transients and move existing transients in the Transients pane.

To display a file in the Transients pane:

- Select the file in the Assets drawer, then click the Transients tab.

Note: The Transients window can only display one file at a time. If multiple files are selected, no waveform is displayed in the window.

To add a new transient:

- Click in the darker area above the beat ruler in the waveform display.

To move a transient marker:

- Drag the marker by its handle in the area above the beat ruler.

To remove a transient, do one of the following:

- Click the transient's handle in the area above the beat ruler, then press the Delete key.
- Drag the transient out of the area above the beat ruler.

In most cases, you can find the optimal placement of transient markers by adjusting the Transient Division menu and Sensitivity slider options. You should only need to edit a few markers individually. The default placement may not be accurate in certain loops, such as loops with highly distorted musical content or unclear rhythms. Such loops will generally require manual edits of transient markers.

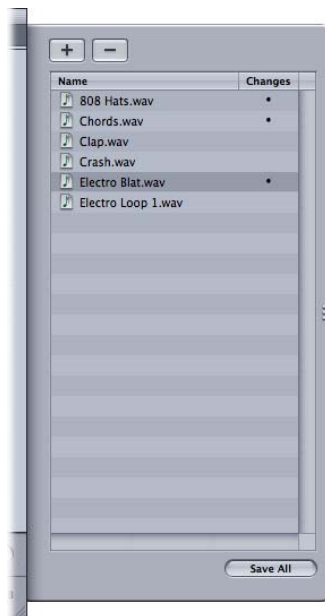
To determine where to place markers, listen to the loop at its original tempo and pitch. Then listen at a different tempo and key, to see how the tempo change affects playback. Repeat this procedure to see how your marker edits affect playback.

You should also keep the following guidelines in mind:

- Each transient marker in the audio file should be labelled by a transient marker in the Apple Loops Utility. You should also add a transient marker at all points of musical significance, including the beginning and end of notes, pitch bends or glissandos.
- During playback, Logic Express speeds up or slows down the tempo of loop areas without transient markers. If a loop contains sustained notes or chords, you should also label these periods with transient markers, ensuring that there is no time period greater than a quarter note without a marker.
- You should always try to achieve the above guidelines using as few markers as possible: artifacts may occur at the transition points between markers (where the tempo is unchanged) and the area between markers (where the tempo is altered).

Assets Drawer

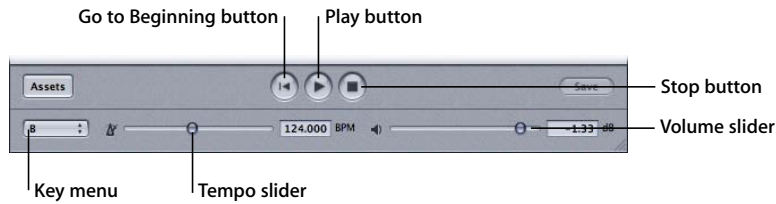
The Assets drawer lists the files open in the Apple Loops Utility. The drawer contains a Name column that lists each open file, and a Changes column, which indicates any files that you have altered. Clicking a file in the Assets drawer, displays it in the Tags or Transients pane.



The Save All button saves all files that have been changed.

Playback and File Management Controls

The bottom of the Apple Loops Utility window contains a set of playback controls, allowing you to audition the selected file. These controls do not affect the file's tags.



- *Go to Beginning button*: Starts playback from the beginning of the selected file.
- *Play button*: Plays back the selected file.
- *Stop button*: Stops playback of the selected file.
- *Key pop-up menu*: Transposes the selected file to a new key for playback.
- *Tempo slider*: Sets the playback tempo of the selected file.
- *Volume slider*: Sets the playback volume of the selected file.

Note: When multiple files are selected in the Assets drawer, the playback controls are not available. You cannot play more than one file at a time in this window.

There are two additional buttons at the bottom of the window, the Assets button and the Save button.

- *Assets button*: Shows and hides the Assets drawer.
- *Save button*: Saves your changes to the currently selected file(s) in the Assets drawer.

Converting ReCycle Files Into Apple Loops

Logic Express allows you to convert ReCycle files into Apple Loops.

To import single ReCycle files as Apple Loops:

- 1 You initiate a ReCycle import by using the same options as for audio files:
 - Choose Audio > Import Audio File (or use the Import Audio File key command). You can also Shift-click an audio track with the Pencil (or Command-Shift-click with the Pointer tool).
Select the desired ReCycle loop in the ensuing file selector box.
 - Drag the ReCycle loop from the Finder onto an audio track.

- 2 Choose the Render to Apple Loop option in the Fix menu of the ensuing ReCycle File Import dialog.



The ReCycle loop is converted to an Apple Loop (the slice points are converted to transient positions) and copied to the ~/Library/Audio/Apple Loops/User Loops/Single Files folder. The Apple Loop is added to your Logic song.

Global Tracks and Apple Loops

You can use the Global tracks to change global events such as tempo, time signature and key during a song. The following section summarizes how these changes in the Global tracks affect the playback of Apple Loops. For detailed information about Global tracks, read the “Global Tracks” chapter in the *Logic Express 7 Reference Manual*.

Tempo Track

Apple Loops adjust automatically to the tempo of this track.

Signature Track

Apple Loops can contain information about their original key, and can be transposed automatically. They will be played back at the song key by default, which is defined by the first key signature event. No distinction is made between major and minor keys for these global transposition functions; in fact, only the root of the initial key signature is relevant for playback of Apple Loops and MIDI Regions.

The global playback key for Apple Loops is determined by the very first key signature in the Signature track (default: C major).

Converting Apple Loops to Audio Files

When you convert an Apple Loop into an audio file, the resulting file may not play at the song's current tempo and key settings. Rather, the new audio file will play at the original tempo and key of the Apple Loop.

This happens when you select an Apple Loop and choose Audio > Convert Regions to New Audio Files from the Arrange menu, and change the File Format parameter in the ensuing window from "Original file type" to either "Wave" or "SDII". This creates a copy of the original Apple Loop file, but without the transient and category tags. The lack of these tags restricts file playback to the originally recorded tempo and key of the Apple Loop—not the tempo and key of the song.

If you want to turn an Apple Loop Region into an audio file that uses the song's tempo and key settings, select the loop (or loops) and choose File > Export > Region as Audio File. Be sure to select the "Add resulting files to Audio window" checkbox to use the new file in your current song.

This will export the Apple Loop as a new audio file with all plug-in effect processing of the track/channel on which the Apple Loop resides. To export the Apple Loop without these effects, bypass them before exporting the Region. To bypass a plug-in, click the Insert slot while pressing the Option.

You should note that although this new file will play at your song's current tempo and key, it can't follow subsequent tempo or key changes like other Apple Loops; such files are fixed at the tempo and key of your song when you exported the file.

 **Tip:** If you enable the Follow Tempo option for the audio file, it will follow the song tempo and the first key signature set in the Global tracks. For further information, see "Working With the Follow Tempo Function" on page 24.

Apple Loops and Sample Rates

The method used to convert the sample rate of audio files also applies to Apple Loops. This sample conversion method also includes correction of transient positions.

To convert the sample rate of an Apple Loop:

- 1 Select the desired Apple Loop in the Audio window.
- 2 Choose Audio File > Copy/Convert File(s) from the local Audio window menu.
- 3 Choose the desired sample rate (and all other file conversion settings) in the ensuing dialog, select the folder location, then click Save.

If the "Add resulting files to Audio window" option is activated, the sample rate converted Apple Loop is automatically added to the song. It will follow the song tempo and key changes (provided that the Key tag was set in the original loop).

Note: If a new Apple Loop is created, it will need to be indexed to make it visible in the Loop Browser. Loops can reside in any directory, but you need to tell Logic Express where to find them.

You will probably not need to convert Apple Loops as often as standard audio files when working with Logic, as Apple Loops offer a major advantage: If the sample rate of your song is changed by choosing Audio > Sample Rate > ... from the main menu bar, the playback speed of all Apple Loops currently used in the song will automatically be adapted to the newly selected sample rate.

Fading Apple Loops

Apple Loops do not support fades, so you can't directly assign a fade to them. As you can't apply fades to an Apple Loop, no fade parameters are displayed in the Region parameter box when an Apple Loop is selected.

If you'd like to achieve a fade effect, you need to export the Apple Loop (choose File > Export > Region as Audio file in the Arrange window). Import this file into the Arrange window and apply the fade to it.

Apple Loop File Paths

The file paths used for Apple Loop installations in Logic Express 7.2 are as follows:

/Library/Audio/Apple Loops

Used for any Apple Loops libraries that ship with Logic Express 7.2. This folder is also used for GarageBand versions higher than 2.0 and any additional Jam Pack libraries (higher than volume 4).

~/Library/Audio/Apple Loops/User Loops

Used for user-created Apple Loops.

/Library/Application Support/GarageBand

Used for all Apple Loops libraries that were released before Logic Express 7.1 (including the libraries that ship with Logic Express 7 and GarageBand 1, as well as Jam Pack library volumes 1 to 3).

~/Library/Application Support/GarageBand

Used for all Apple Loops created with Logic Express 7, Logic Express 7.0.1 (or any GarageBand 1 versions)

Note: Apple Loops dragged from the Finder into the Loop Browser window, in conjunction with the "Copy to Library" option, copies the Apple Loop(s) to this location. You may, of course, keep additional copies of Apple Loops in their original Finder location(s).

The location of all files (preferences, plug-in settings and so on) associated with Logic Express have changed.

Unlike earlier versions, Logic Express 7 does not use the program folder as the location for any associated files. Logic Express 7 complies fully with Mac OS X standards:

Pre-installed files

All pre-installed files are located in the *local domain*: *YourHardDiskName*

It is usually prefaced with a: / (at the beginning of a path).

User created/editable files

All files that can be directly written by the user are located in the *user domain*:

YourHardDiskName/Users/YourUserName.

It is usually prefaced with a: ~/

Preferences

All preference files are installed in: ~/Library/Preferences/Logic

The main preference file is named: com.apple.logic.express

Other Logic Express preference files are also found in this folder.

Song Templates

Logic Express scans for a folder named "Song Templates" in the following folder:

~/Library/Application Support/Logic.

Logic Express then searches for the "Autoload" or "Autoload.Iso" song in:

/Library/Application Support/Logic.

Plug-in Settings

Logic Express scans for a folder named after the plug-in ("PlugInName/") in the following folders, and order:

- ~/Library/Application Support/Logic/Plug-In Settings
User-defined or edited settings are always stored here. These settings appear in the top level of the Settings pop-up menu in Plug-in windows. The "Save Setting as" command defaults to this level. "Save Setting" only works on settings located at this top level (otherwise a "Save Setting as" is performed).
- /Library/Application Support/Logic/Plug-In Settings
Factory settings are installed here. If Logic Express 7.2 also finds settings in one of the other locations, the settings found here appear in the "Factory" subfolder of the Settings menu.
- /Applications/Logic 6 Series/Plug-In Settings
The setting files of the Logic 6 Series were always stored here. If Logic Express also finds settings in one of the other locations, the settings found here appear in the "Logic 6 Series" subfolder of the Settings menu.

It is recommended that all old settings from this folder are moved to the new location for user settings (~/Library/Application Support/Logic/Plug-In Settings). You can do this with a drag and drop in the Finder, or in Logic; by loading the settings, and saving them to the new location (which is the default location of the "Save" or "Save as" dialogs).

Default settings

Like earlier versions, Logic Express allows you to use a default setting file that automatically loads when opening a plug-in. This file must be named "#default.pst", and is searched for in: ~/Library/Application Support/Logic/Plug-In Settings/PlugInName.

This is where you can save your own default setting. Simply save a setting called "#default.pst".

If not found, Logic Express looks in /Library/Application Support/Logic/Plug-In Settings/PlugInName/ and then /Applications/Logic 6 Series/Plug-In Settings/PlugInName.

GarageBand Instruments

Logic Express searches for GarageBand Instruments in the: "Plug-In Settings/PlugInName" folder in the following directories, and order:

- ~/Library/Application Support/Logic/Plug-In Settings/PlugInName
User-defined or edited settings are stored here.
- /Library/Application Support/GarageBand/Plug-In Settings/PlugInName
"Factory" settings are stored here.

Channel Strip Settings

Logic Express scans for a folder named “Channel Strip Settings” in the following folders, and order:

- ~/Library/Application Support/Logic
User-defined or edited Channel Strip settings are stored here.
- /Library/Application Support/Logic
Factory settings are always stored here.

Logic Express also scans the following folder path for Track and Instrument Audio Objects: /Library/Application Support/GarageBand/Instrument Library/Track Settings.

EXSP Instruments

Logic Express scans for a folder named “Sampler Instruments” in the following folders, and order:

- ~/Library/Application Support/Logic
User-defined or edited instruments are stored here.
- /Library/Application Support/Logic
Factory EXS Instrument files are installed here.
- /Applications/Logic 6 Series
EXS Instrument files of the Logic 6 Series are always stored here.
- .../SongOrProjectName
As in earlier versions, Logic Express also searches for EXS Instruments in the project or song folder.

Logic Express also looks in: /Library/Application Support/GarageBand/Instrument Library/Sampler.

EXSP Sample Conversion

These are the default locations for converted samples of different formats:

- ~/Library/Application Support/Logic/AKAI Samples
For samples converted from AKAI format.
- ~/Library/Application Support/Logic/DLS-Giga Samples
For samples converted from GigaSampler/GigaStudio format.
- ~/Library/Application Support/Logic/SoundFont Samples
For samples converted from SoundFont format.

User Icons

Logic Express scans for user-definable track icons in the following folder:
~/Library/Application Support/Logic/Images/Icons.

The format for user icons remains .png. The filename needs to start with xxx (where xxx is a 1 to 3 digit number). Correspondingly numbered default icons will be replaced by your personal icons.

Control Surface Plug-ins

Control Surface plug-ins are installed (and searched for) in the application bundle.

You can install additional Control Surface plug-ins in:
~/Library/Application Support/MIDI Device Plug-ins.

Tuning Tables

Logic Express scans for a folder named “Tuning Tables” in the following folder:
/Library/Application Support/Logic.

Default Directories

Logic Express uses the following default directories:

- ~/Music/Logic: for Logic Express songs (Open/Save/Save as).
- ~/Movies: for Movie files (Open).
- ~/Pictures: For the Camera tool in the Score Editor (Save Bitmap File as).

The following chapter outlines the plug-in enhancements that have been made since Logic Express 7, superseding the information in the Logic Express 7 Plug-in Reference.

This includes the following:

- Working with the AU Manager
- Working with full plug-in delay compensation
- Instrument enhancements
- Effect enhancements

Working With the AU Manager

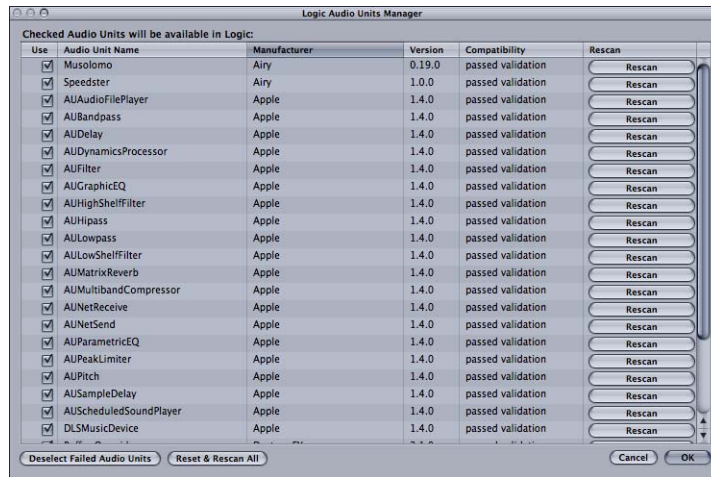
Logic Express uses the Apple AU Validation Tool to ensure that only Audio Units plug-ins that fully comply with the Audio Units specification are used in Logic. This minimizes problems that may be caused by third-party Audio Units plug-ins when running Logic.

The validation process takes place automatically when you launch Logic Express. You can see the results of the scan for all Audio Units plug-ins in the Logic AU Manager.

To open the AU Manager, do one of the following:

- Choose Preferences > Start Logic AU Manager in the main menu bar.
- Use the Start Logic AU Manager key command.

Note: Logic Express automatically quits before the Logic AU Manager is launched. Logic will automatically restart after you quit the Logic AU Manager.



The results of the test are shown in the Compatibility column. Audio Units plug-ins that “failed” the validation test, can be enabled—but be aware that these plug-ins can cause problems. Use of plug-ins that have failed the validation can negatively affect the test results of subsequently scanned plug-ins, can cause Logic to quit unexpectedly, or even lead to data loss (destroyed song files).

It is strongly recommended that you check the manufacturer’s website for updated versions of Audio Units plug-ins that fail the validation.

The Logic AU Manager also allows you to disable Audio Units plug-ins that you don’t want to use in Logic, even if they pass the test. Simply uncheck the corresponding checkbox in the Use column to disable any plug-in. You can store your choice of Audio Units plug-ins by clicking OK.

Click the Reset & Rescan All button to run another validation test, after installing plug-ins/updaters or moving components in the Finder, while Logic or the AU Manager are open. You can also rescan individual plug-ins—in cases where you’ve installed an updated version. Updated plug-in versions will automatically be tested the next time Logic is launched. They will be enabled automatically, if they pass the validation scan.

Note: If you press Control-Shift while launching Logic, the AU Safe Mode will be used: Only plug-ins that pass the validation test will be available; manually activated plug-ins that failed the validation test will not be available.

Working With Plug-in Delay Compensation

Logic Express includes plug-in delay compensation for instruments, tracks, busses, auxes, outputs and ReWire Objects. A pop-up menu in the Logic > Preferences > Audio > General pane allows you to activate plug-in delay compensation for either:

- Audio tracks and instruments
- All (Audio Track, Instrument, Bus, Aux, ReWire and Output Objects)



About Plug-in Delay Compensation

Some effect plug-ins introduce latency: this means that it takes the effect a short time to process the audio fed into it—as a result, the plug-in output will be slightly delayed. This happens with all dynamic effects that feature lookahead parameters, for example. Logic provides plug-in delay compensation for all channels: If activated, Logic compensates for latency introduced by plug-ins, ensuring that audio routed through such plug-ins is synchronized with all other audio.

Logic achieves this by calculating the amount of latency caused by plug-ins and delaying audio streams by an appropriate amount—or by shifting instrument and audio tracks forward in time. The compensation method depends on the type of channel in which the latency-inducing plug-in is inserted.

- If latency-inducing plug-ins are inserted in bus, aux, ReWire and output channels, Logic *delays* all other audio streams by an appropriate amount.
- If latency-inducing plug-ins are inserted in audio and audio instrument channels, Logic automatically shifts these tracks *forward* in time. The advantage of this method is that other channels (that do not contain latency-inducing plug-ins) do not need to be delayed.

As an example: Imagine a simple song with a few bass, guitar, vocal, and drum tracks. The bass track is played through an Audio Object that contains a plug-in that introduces a latency of 100 ms. All guitar tracks are routed to a Bus Object that contains several inserted plug-ins. The combined latency introduced by these plug-ins is 300 milliseconds (ms). The vocals are routed through another Bus Object that has a set of plug-ins that introduce 150 ms of latency. The drum tracks are routed straight to the main outputs, without being routed through any plug-ins. If latencies were not compensated for, the drum tracks would play 300 ms ahead of the guitar tracks. The bass track would play 200 ms ahead of the guitar track, but 100 ms behind the drums. The vocals would play 150 ms before the guitar track, but 150 ms behind the drums and 50 ms behind the bass. Needless to say, this isn't ideal.

With Plug-in Delay Compensation set to *All*, Logic shifts the bass track forward by 100 ms, thus synchronizing the bass and drum tracks. Logic will then delay both streams in the Output Object by 300 ms, aligning them with the guitar tracks. The Bus Object that the vocals are streamed to is also delayed by 150 ms, aligning it with the drum and guitar streams. The precise calculations required for each stream are handled automatically.

Plug-in Delay Compensation Limitations

Plug-in delay compensation works seamlessly during playback and mixing. The delay created to compensate for latency-inducing plug-ins in bus, output and auxiliary channels can be applied to non-delayed streams before they are played back. Instrument and audio tracks (that contain latency-inducing plug-ins) can also be shifted forward in time before playback starts.

There are, however, some limitations if you use plug-in delay compensation with live tracks. Shifting pre-recorded instrument and audio tracks forward in time is possible when the audio is streaming live. So, recording while plug-in delay compensation is set to instruments and tracks will work fine—as long as you do not try to record through latency-inducing plug-ins: A live track can not be shifted forward in time.

Delaying a live stream in order to synchronize it with other delayed audio channels is *not* possible. This may lead to problems should you decide to make further recordings after setting plug-in delay compensation to *All*, and inserting latency-inducing plug-ins in auxes, busses, and outputs. If Logic needs to delay streams to compensate for plug-in latencies, you will be listening to delayed audio streams during recording. As such, your recording will be late by the number of samples that the audio streams were delayed by.

For these same reasons, you may encounter increased latency if playing Audio Instrument tracks live when plug-in delay compensation is set to *All*.

Dealing With Latency Issues

To avoid these potential pitfalls, try to complete any audio and audio instrument recording before inserting latency-inducing plug-ins. If you find it necessary to record an audio instrument or audio track after setting up a latency-inducing signal routing, the following procedure will help you to get around any possible problems.

To record after setting up a latency-inducing signal routing:

- 1 Switch the plug-in delay compensation setting from “All” to “Audio tracks and instruments” in the Logic > Preferences > General > Audio pane.

Note: You can use the Toggle Plug-In Delay Compensation: All/Tracks and Instruments key command to quickly switch the delay compensation setting between “All” and “Audio tracks and instruments”.

The “Audio tracks and Instruments” plug-in delay compensation method shifts tracks that contain latency-inducing plug-ins *forward* in time—so any audio and audio instrument tracks that contain latency-inducing plug-ins will be in sync with non-delayed tracks. There is only one exception: Live tracks can not be shifted forward in time.

The next step is to eliminate any latency induced by plug-ins in your recording track.

- 2 Bypass any latency-inducing plug-ins on the recording track by Option-clicking on the respective Insert slot(s).

In the “Audio tracks and Instruments” plug-in delay compensation mode, *bypassing* plug-ins eliminates the latency that they create. Latency induced by plug-ins in audio and Audio Instrument tracks is compensated for.

The last thing to do is to get around the latency introduced by plug-ins on busses, auxes and outputs.

- 3 Bypass any latency-inducing plug-ins on busses, auxes and outputs to eliminate any latency.

At this point, all audio streams will be synchronized, allowing you to proceed with your recording.

When you’ve finished recording, re-enable all latency-inducing plug-ins, and switch the delay compensation setting to “All”.

Note: In the All mode, bypassing plug-ins on busses, auxes and outputs will not eliminate the latency that they create. You must remove these plug-ins entirely from the Insert slots to eliminate latency.

If you are recording audio, another strategy would be to disable the Software Monitoring checkbox in the Logic > Preferences > Audio > Drivers pane. This would necessitate monitoring your recording via an external mixer. When Logic is not providing software monitoring of incoming audio, it can correctly position audio recordings—even when full delay compensation is active. Obviously, you can't use external monitoring when recording audio instruments.

Note: As Logic has no direct control over the audio outputs of external devices, plug-in delay compensation can not work for MIDI tracks that trigger external sound modules. If you activate full plug-in delay compensation and insert latency-inducing plug-ins, external MIDI signals will be out of sync with the delayed audio streams.

Adjusting Plug-in Parameters With the Mouse Wheel

You can use the mouse wheel to adjust Logic plug-in parameters in Logic Express.

To adjust plug-in parameters with the mouse wheel:

- 1 Position the mouse cursor over the desired Logic plug-in parameter.
- 2 Click and move the mouse wheel.

Support of Generator Audio Units Plug-ins

Logic Express supports the Generators Audio Units plug-in type. As the name suggests, these Audio Units plug-ins generate audio signals. In contrast to Audio Units Instruments, however, they do not require a MIDI signal. All Audio Units Generator plug-ins installed on your system can be found in the respective AU Instrument menu's Mono/Stereo/Multichannel > Generators sub menu.

This means that you can choose between three different types of Audio Units plug-ins (provided you have suitable plug-ins installed on your system) in the Instrument menu:

- AU Generators
- AU MIDI Controlled Effects: As these effects can be controlled via MIDI, they are inserted into the Instrument slot of Audio Instrument Objects. The audio signal that you would like to process is then selected via the plug-in's Side Chain menu.
- AU Instruments

EXSP24 mkII

The following information supplements the EXSP24 mkII section in the *Logic Express 7 Plug-In Reference*.

Vel Offset parameter

The Vel Offset parameter—found towards the top left of the EXSP24mkII GUI—offsets the incoming MIDI note velocity value by ± 127 . This limits or expands the dynamic response of the EXSP24 mkII to incoming note events.



Time Curve parameters

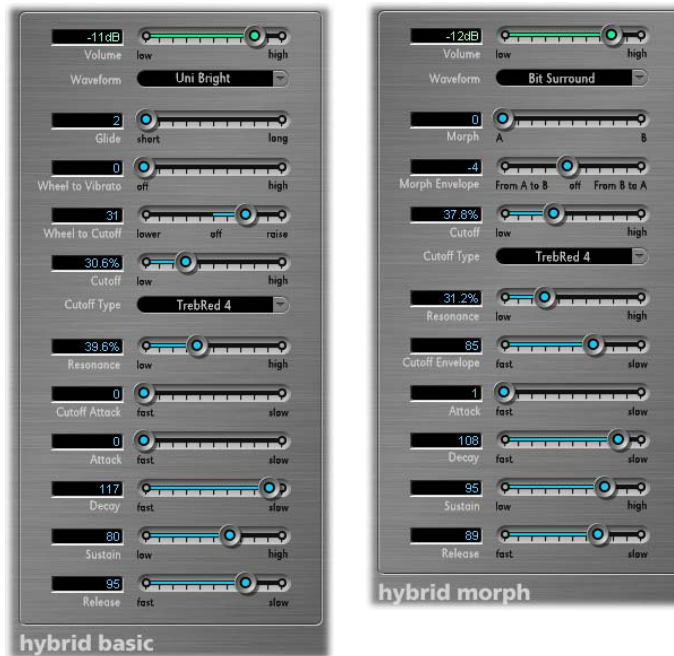
The Time Curve sliders apply to both the filter and volume envelopes; the left slider, known as Time Via Key, can be used to scale (lengthen or shorten) the time intervals of both envelopes.



Note position C3 is the center point; time intervals for all zones assigned to keys above C3 can be reduced in length with this slider. All time intervals for zones assigned to keys below C3 can be lengthened. The (Attack) Curve slider determines the shape of the envelope attack time.

GarageBand Instruments

Two additional GarageBand 2 instruments are included in Logic Express. These are the sample-based Hybrid Basic and Hybrid Morph synthesizers.



Both synthesizers are limited to a few powerful, but easy to use parameters, outside of the common ADSR, cutoff and resonance options. Experiment with these controls to discover how simple it is to create spectacular sounds.

Of note are the Wave pop-up menus, which allow you to choose the sample set used to generate the basic synthesizer sound.

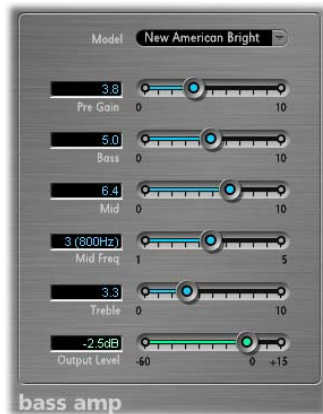
Each “Wave” in the Hybrid Morph synthesizer is based on two sample layers. The Morph control crossfades between the two sample layers. The Morph Envelope allows you to control the morph over time. As an example, setting the Morph parameter to B and the Morph Envelope to From A To B, morphs the Wave from A to B in accordance with the ADSR envelope settings.

Note: If you set the Morph parameter to A and the Morph Envelope to From A to B, certain ADSR settings will result in no sound.

In this context, you can achieve interesting results by using the modulation wheel to offset the Morph parameter during live performances.

In the Hybrid Basic synthesizer, you can use the Wheel to Vibrato and Wheel to Cutoff sliders to determine the parameters controlled by the modulation wheel.

Bass Amp



The Bass Amp plug-in simulates the sound of several famous bass amplifiers. You can process bass guitar signals directly within Logic and reproduce the sound of high-quality bass guitar amplification systems.

You can also use the Bass Amp for experimental sound design. You may freely use the plug-in on other instruments, as desired—applying the sonic character of a bass amp to a vocal or drum part, for example.

Nine different amplifier models can be accessed via the Model pop-up menu at the top of the Bass Amp interface:

- *American Basic*: American bass amp model from the 1970's, equipped with eight 10" speakers. Well suited for blues and rock recordings.
- *American Deep*: Based on American Basic amp model, with strong lower mid frequency (from 500 Hz on) emphasis. Well suited for reggae and pop recordings.
- *American Bright*: Based on the American Basic setting, this setting massively emphasizes the upper mids (from 4.5 kHz).
- *American Scoop*: Based on American Basic amp model, the American Scoop setting combines the frequency characteristics of the American Deep and American Bright, with both low mid (from 500 Hz) and upper mid (from 4.5 kHz) frequencies emphasized. Well suited for funk and fusion recordings.
- *New American Basic*: American bass amp model from the 1980's, well suited for blues and rock recordings.
- *New American Bright*: Based on the New American Basic model, this setting strongly emphasizes the frequency range above 2 kHz. Well suited for rock and heavy metal.

- *Top Class DI Warm*: Famous DI box simulation, well suited for reggae and pop recordings. Mids, in the broad frequency range between 500 and 5000 Hz, are de-emphasized.
- *Top Class DI Deep*: Based on the Top Class DI Warm model, this setting is well suited for funk and fusion: its mid frequency range is strongest around 700 Hz.
- *Top Class DI Mid*: Based on the Top Class DI Warm model, this setting does not emphasize any frequencies, but features a more or less linear frequency range. It is suitable for blues, rock, and jazz recordings.

At the top of the slider section, you will find the Pre Gain control, used to set the pre-amplification level of the input signal.

Directly below this slider, you will find the Low, Mid, and High controls. Use these sliders to adjust the bass, mid, and treble levels as desired. The additional Mid Frequency control allows you to adjust the center frequency of the mid band between 200 Hz and 3000 Hz.

The Output Level slider serves as a final level control for the Bass Amp output.

New Ducker Plug-in

The Logic Express 7.2 Update features the new Ducker plug-in (in the Logic > Dynamic submenu).

Important: For technical reasons, the Ducker plug-in can only be inserted in Output and Bus Objects.



Ducking is a common technique used in radio and television broadcasting: when the DJ/announcer speaks while music is playing, the music level is automatically reduced. When the announcement has finished, the music is automatically raised to its original volume level.

The Ducker plug-in provides a simple means of performing this process. It can even reduce the music level before the speaker starts (but this introduces a small amount of latency).

To use the Ducker plug-in:

- 1 Insert the Ducker plug-in into an Audio Output or Bus Object.
- 2 Assign all track outputs that are supposed to “duck” (dynamically lower the volume of the mix) to a bus.
- 3 Select the buss that carries the ducking (vocal) signal in the Side Chain menu of the Ducker plug-in.

Note: Unlike all other side chain capable plug-ins, the Ducker side chain is mixed with the output signal after passing through the plug-in. This ensures that the ducking side chain signal (the voice over) is heard at the output.

- 4 Adjust the Ducker’s parameters.

The Ducker plug-in offers the following parameters:

- *Intensity*: Defines the amount of volume reduction (of the music mix track—this, in effect, is the output signal).
- *Threshold*: Determines the lowest level that a side chain signal must attain before it begins to reduce the (music mix) output level by the amount set with the Intensity slider. If the side chain signal level doesn’t reach the threshold, the (music mix) track volume is not affected.
- *Attack*: Controls how quickly the volume is reduced. If you want the (music mix) signal to be gently faded out, set this slider to a high value. This value also controls whether or not the volume is reduced before the threshold is reached—the earlier this occurs, the more latency is introduced. It should be noted that this only works if the ducking signal is not “live” (in other words, the ducking signal must be an existing recording): Logic needs to analyze the signal level before it is played back, to anticipate the point where ducking begins.
- *Hold*: Determines the duration that the (music mix) track volume is reduced for. This control avoids a chattering effect that can be caused by a rapidly changing sidechain level. If the sidechain level hovers around the threshold value, rather than clearly exceeding or falling short of it, set the Hold parameter to a high value to compensate for rapid volume reductions.
- *Release*: Controls how quickly the volume returns to the original level. Set to a high value if you want the music mix to slowly fade up after the announcement.

New Speech Enhancer Plug-in

Logic Express 7.2 includes the new Speech Enhancer plug-in. This plug-in is designed to improve speech recordings made with your computer's internal microphone (if applicable). It combines denoising, advanced microphone frequency remodeling and multiband compression.



The plug-in offers the following controls:

- *Denoise*: The value of this slider determines your estimation of the noise floor in your recording, and therefore, how much noise should be eliminated. Settings towards 100 dB allow more noise to pass. Settings towards 0 dB will increasingly suppress background noise, but will increase artifacts.
- *Mic Correction button and Mic Model menu*: Activate this button to improve the frequency response of audio recordings made with your built-in microphone, creating the impression that an upmarket microphone was used. Choose the appropriate mic model from the Mic Model menu. You can use the Mic Enhancer plug-in with other microphones, but mic correction models are only offered for built-in Macintosh mics. Should a non-Macintosh microphone be used, you will achieve the best results if Mic Correction is turned Off.
- *Voice Enhance button and menu*: Activation of this button turns on the multiband compression of the Mic Modeler. You can choose between three compression settings, making your recorded voice louder and more intelligible. Use the setting that offers the best results for your recording situation.

Enhance Timing Effect

The Enhance Timing plug-in non-destructively enhances the timing of audio recordings. It offers two parameters: The Intensity control determines the amount of timing enhancement. Audio transients that don't fall on the grid divisions (determined by the value chosen in the Grid menu) are corrected.

The Grid pop-up menu allows you to choose between several grid divisions. As described above, the grid divisions serve as reference points for the timing correction process.

The Enhance Timing plug-in is designed to “tighten up” loose playing (of recorded audio) in a production. It can be used on a variety of material, and works in realtime.

Obviously, this type of real-time quantization has some limitations. It will not work well on recordings of performances that have been played too far off the beat. The same is true for very complex, layered drum tracks. It will provide noticeable timing improvements on reasonably tight percussive and melodic material—played in an eighth or quarter note feel. If a large amount of timing correction is needed and transients are shifted too far, you may notice a number of audio artefacts, so try to strike the balance between sound quality and timing enhancement.

Important: For technical reasons, the Enhance Timing plug-in only works on audio tracks and must be inserted in the top Insert slot.

As a tip for triplets, try the 1/12 note setting for played 8th note triplets.

Vocal Transformer Effect

The Vocal Transformer plug-in allows you to manipulate vocal tracks in many different ways. If you want to transpose the pitch of a vocal line, or turn a vocal track into a “Mickey Mouse” voice—the Vocal Transformer will be your plug-in of choice.



In the Settings menu in the Vocal Transformer’s plug-in window, you can choose between presets.

With the two sliders below the menu you can modify the presets and create your own settings.

The Pitch slider transposes the pitch (up to) two octaves upwards or downwards. Adjustments are made in semitone steps.

The Formant parameter shifts the formants, while maintaining the pitch or while independently altering the pitch. If you set this parameter to positive values, the singer sounds like Mickey Mouse. By altering the parameter downwards, you can achieve sound effects reminiscent of Darth Vader from Star Wars.

Enhance Pitch Effect

Logic Express includes the Enhance Pitch effect, that non-destructively corrects the tuning of audio recordings.



The Response slider determines how quickly the audio recording reaches the corrected destination pitch. If the Response is too slow, the pitch of the output signal won't change quickly enough. The Response of pitch changes is indicated in milliseconds. The optimum setting for this parameter depends on the tempo, vibrato, and quality of the original performance.

The Scale buttons allow you to set the pitch quantization grid. The notes in the audio recording are moved closer to the pitch defined in the grid.

The default Scale setting is Chromatic. If this setting is active, the Enhance Pitch plug-in moves notes to the closest pitch on the chromatic (12 note) scale. If you choose the Maj or Min scale, the Root menu allows you to set the root note of the scale.

Important: The Enhance Pitch plug-in can only produce accurate results on monophonic (single note) audio recordings.

Mix Slider of Platinum Verb and Tape Delay

The user interface of the Platinum Verb and Tape Delay have been enhanced: The Dry and Wet sliders were moved from the 001/011 view to the Editor view, replacing the Mix slider (which is still available in the 001/011 view).

Audio Units Multi-Channel Instrument Support

Logic Express 7.2 supports up to 32 mono outputs from multi-output Audio Units instruments (previous Logic versions supported 16 mono channels).

To access the individual outputs of an Audio Instrument:

- Click the Instrument slot of the Audio Instrument Object and choose the desired Audio Units instrument from the Plug-in menu's Multi Channel submenu.

The first two outputs of the multi-output instrument are played back as a stereo pair by the instrument channel in which the plug-in is inserted. Additional outputs are accessed via Aux Objects.

Conversion of EVP73, EXSP24, and ET1 Audio Units Plug-ins

Loading existing songs that contain an EVP73 (AU) plug-in instance will be converted to use the GarageBand Electric Piano (if the Audio Unit is unavailable).

Loading existing songs that contain an EXSP24 (AU) plug-in instance will be converted to use the internal EXS24 player (if the Audio Unit is unavailable).

Loading existing songs that contain an ET1 (AU) plug-in instance will be converted to use the internal Tuner plug-in (if the Audio Unit is unavailable).

Corrections to Logic Express 7 Documentation

The following section contains a number of manual corrections where functionality was altered after writing, or was incorrectly documented.

Freezing tracks using DSP-card based effects

The *Logic Express 7 Reference* manual incorrectly states that you cannot freeze tracks that make use of DSP-card based effects. You may freeze such tracks.

Opening non-floating Plug-in window

The *Logic Express 7 Reference* manual states that Shift-double-clicking a used Insert slot will open a non-floating Plug-in window. This is incorrect. The correct shortcut is Control-Option-double-click.

Exporting Logic 4.8 songs

The *Logic Express 7 Reference* manual discusses the export of Logic 4.8 format songs. This cannot be done directly in Logic Express 7. You can, however, use Logic 6.4.3 to open a Logic Express 7 song, and use the Logic 4.8 Export function available in this Logic version (6.4.3).

Warning: It should be noted that some data (such as automation) will be lost during an export to a Logic 4.8 song.

Input Objects in Logic Express

The Audio Input Objects described in the *Logic Express 7 Reference* manual do not exist in the application.

Note Velocity Hyper Draw in Logic Express

Hyper Draw for note velocity described in the *Logic Express 7 Reference* manual on p. 236 and on p. 348 does not exist in the application.

Record Enable buttons in Logic Express

Record Enable buttons for Audio Instrument and MIDI tracks described in the Logic Express 7 Reference manual do not exist in the application.